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AUTHOR Gold, Ben K.; Morris, William
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ABSTRACT

This manual describes a comprehensive system of procedures or a model constructed for the purpose of improving occupational student follow-up in California community colleges. The manual deals with such pragmatic research considerations as conceptualization of research design, sampling, questionnaire content, suggestions for data processing, and steps in actual implementation of the model. Among the other major topics dealt with in various sections of the manual are classification of occupational courses and identification of occupational student majors, follow-up procedures for various groups (graduates, partial completors, etc.), employer follow-up, and data processing. Appended are materials relating to identification of disadvantaged students, sampling techniques in follow-up studies, sample follow-up instruments, and a bibliography. (JDS)

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OPERATIONS MANUAL

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California Community Colleges
Chancellor's Office

Los Angeles Community College District

SAM

STUDENT ACCOUNTABILITY MODEL

Cooperating Community Colleges

FEBRUARY, 1977

STUDENT ACCOUNTABILITY MODEL
(SAM)

OPERATIONS MANUAL

Vocational Education, Part C
Project #19-64741-C-6-010

Chancellor's Office
California Community Colleges
William Morris, Evaluation Specialist

Ben K. Gold, Director of Research
Los Angeles City College
Project Coordinator

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P R E F A C E

This manual is a revision of an earlier manual (SAM Procedures Manual, August 1974) and describes a system of procedures (or model) constructed for the purpose of improving occupational student follow-up in California community colleges.

It became evident early in the project that a fundamental component in the model would have to be a uniform method for classifying occupational courses and identifying occupational majors so that non-continuing students could be categorized for various approaches to follow-up. This manual describes recommended procedures for accomplishing these objectives and suggests methods for obtaining useful information about occupational students during and after their stay in college.

The model was developed by a consortium of twelve leaders in California Community Colleges, including occupational and general administrators, researchers, and data processing specialists. Input was solicited from other colleges and from staff of the Chancellor's Office.

It is hoped that the model will be of assistance to the colleges in (1) evaluating and planning their occupational programs and in (2) completing required enrollment and follow-up forms related to vocational education. Comments and suggestions toward its improvement will be welcomed.

The manual represents the state of the SAM model as of the date printed on the cover. Field tests of certain aspects of the model are being conducted as of that date, with subsequent recommendations for refinements forthcoming. These recommendations will be made available in future publications.

BKG

STUDENT ACCOUNTABILITY MODEL

I. INTRODUCTION

It is almost universally agreed that information from and about students after they leave college is important to a college in evaluating its program and in planning for the future. It is also almost universally agreed that the task of obtaining "follow-up" information that is reliable, valid, and useful is a difficult one.

Two developments in recent years have added credence to the above statements, particularly in regard to occupational students in community colleges: (1) the 1968 amended Vocational Education Act, PL 90-576, requires that colleges receiving funds under the Act report each year, among other things, numbers of students who have completed occupational programs and found employment in the field for which they were trained; and (2) Project COPES (Community College Occupational Programs Evaluation System-funded by the California Community Colleges Chancellor's Office), in their May 1973 report, indicated that "systematic follow-up of students who have completed occupational programs" had the lowest mean rating of all sixty items used in the evaluation procedure of eight colleges selected in a stratified random sample of all California public community colleges.

These developments, along with an awareness of significant changes taking place in student populations, in instructional methodologies, and in functions and general philosophy of the community college, led the Chancellor's Office to draft a tentative proposal for a project to improve occupational student follow-up.

In March 1973, under the leadership of Dr. William Morris, the Chancellor's Office invited representatives of six California community colleges, with each person selected for his specialized skill and/or experience in research projects concerning follow-up and reporting practices, to meet and critique the proposal. Out of this meeting grew a detailed plan for a project to design and implement a system (or systems) for follow-up of community college students.

The Project (later dubbed SAM: Student Accountability Model) was funded in August 1973. Dr. Ben Gold, Research Director at Los Angeles City College, was asked to coordinate project activities, in consultation with Dr. William Morris, and the Los Angeles Community College District agreed to provide fiscal management.

A basic assumption pertinent to implementation of the project was that any system to be workable and acceptable to the colleges must be developed with continual guidance from community college personnel.

Thus, the first step was the formation of a twelve member consortium, with individual members chosen to represent large and small colleges, northern and southern colleges, and expertise in the areas of occupational administration, general administration, data processing and institutional research. (Consortium members are listed in Appendix E).

The fundamental task of the project was agreed to be that of developing a model to accomplish the following purpose:

> To provide a system of procedures for identifying and describing California community college occupational students and for obtaining information about them after they leave college, in order to satisfy two needs:
>
> (1) completion of reporting forms required for governmental agencies, and
>
> (2) program evaluation and planning.

Visits to a statewide sampling of colleges during the early planning stages revealed a wide variety of practices in obtaining quantitative information regarding occupational program enrollments and subsequent job placements. These visits also produced data (and opinions) concerning needs and operating constraints within individual colleges. As a result of these visits, the following sets of guidelines and assumptions were developed as bases for construction of the model.

Guidelines for the System: Essential

(1) System must be adaptable to any California community college and to all occupational programs offered by the college.

(2) Operation of system must be sufficiently simple so that outside expertise is not required after initial implementation.

(3) System must lend itself to electronic data processing but be adaptable to manual operations.

(4) System must maximize the use of current college staff and minimize the necessity for hiring additional personnel.

(5) System must be ongoing, not "one-shot."

(6) Any alternative sub-systems must provide substantially equivalent information.

Guidelines for the System: Essential (continued)

(7) System must provide necessary information for Vocational Education enrollment and follow-up forms with a high level of accuracy and on time.

(8) System must provide pertinent evaluation and planning information to occupational administrators and faculty.

(9) System must indicate enrollments as of the census week in the semester (quarter) concerned, but must also provide flexibility for specially scheduled courses.

(10) Data collection instruments must be easily readable, require a minimum of time for completion, and be in a format easily adaptable to electronic data processing.

Guidelines for the System: Highly Desirable

System should:

(1) be expandable to include students other than occupational students.

(2) provide for employer as well as employee input.

(3) provide for long term as well as short term follow-up.

(4) require a minimum of effort for colleges to "retool" from existing systems.

(5) not in any way imply that other methods of program evaluation are less important.

(6) build on existing research information.

(7) adapt with minimum difficulty to changes in reporting requirements.

(8) provide estimates of any sampling and/or response bias.

(9) provide additional information useful to college counseling staff.

(10) provide additional information useful to college placement office.

Some Assumptions and Inferences

(1) Colleges need a system such as proposed in this project.
Inference: Colleges will be committed to participation and support of the project.

(2) No system for identifying student majors can be 100% accurate.
Inference: Project should determine what accuracy is reasonable and model should assure that accuracy.

(3) Difficulty in student major identification decreases the longer the student stays in college.
Inference: Target accuracy rates should vary with groups involved.

(4) No sizable follow-up procedures can produce 100% response.
Inference: Project should determine what response rates are acceptable and under what circumstances.

(5) Difficulty in contacting former students increases the longer they are away from college.
Inference: Target response rates should be expected to vary with groups involved.

(6) A workable system requires input from those "close to the scene."
Inference: Occupational faculty, department or division chairpersons, and counselors should be involved in the system.

(7) Follow-up information about students who have completed considerable work at the college is more useful in program evaluating and planning than that about students who have completed little or no work.
Inference: While short-tenure students should certainly not be ignored, more effort should be expended on the follow-up of long-term students.

(8) Specific objectives of follow-up studies may differ among colleges and among groups within a college.
Inference: Specific objectives for follow-up studies should be determined before the study design is finalized; over-all system must be flexible enough to adapt to differing objectives.

(9) Student attitude is an important factor in follow-up response rates.
Inference: Efforts should be made to prepare students for follow-up requests, preferably before they leave the college.

Some Assumptions and Inferences (continued)

To meet these guidelines and assumptions, the model was envisioned as having two components: (1) the Student Accounting Component, in which occupational students are operationally defined and classified according to criteria which are both adequate and simple to apply, and (2) the Student Follow-up Component, in which occupational students no longer in college are categorized and procedures recommended for obtaining information about them, with details of the procedures depending on the category.

II. STUDENT ACCOUNTING COMPONENT

In the Student Accounting Component, occupational courses are classified and prioritized, and student majors are defined according to the occupational courses in which they enroll.

The most critical aspect, therefore, of the entire model is the careful classification of occupational courses.

II-A. Classification of Occupational Courses

An occupational course is defined as one which is (all three):

(1) intended to develop skills and related knowledge needed for job performance.

(2) part of the course sequence of an occupational program offered by the college.

(3) designed primarily for job preparation and/or job upgrading or updating and not for general education purposes.

Prior to each semester, the occupational administrator (or his delegate) should examine all courses offered by occupational departments, number each with an appropriate CID (or USOE) number*, and follow (or precede) the number with a priority letter as follows:

* Numbers should be assigned, according to judgment and experience of administrator, to specific area most consistent with content of the course.

CID: Classification of Instructional Disciplines, State Chancellor's Office.

USOE: U. S. Office of Educational Vocational Education Classification.

II-A. Classification of Occupational Courses (continued)

Priority "A" - Apprenticeship

Course is an apprenticeship course.

Priority "B" - Advanced occupational

Course is offered in one specific occupational area only and clearly labels its taker as a major in this area. Priority B courses will generally be those taken by students in the advanced stages of their occupational programs.

Priority "C" - Clearly occupational

Course is offered in several specific occupational majors within a broad area and is of difficulty level sufficient to detract "drop-ins." Priority C courses will generally (but not necessarily) be taken by students in the middle stages of their occupational programs.

Priority "D" - Possibly occupational

Course is introductory level occupational or is primarily a service (or survey) course for other occupational programs. Priority D courses may be taken by non-occupational as well as occupational majors.

For borderline courses (between C and D), it is suggested that the deciding factor should be an estimate (based on judgment and experience) of the number of students taking the course whose major is judged to be occupational. If the number is estimated to be 75% or more of the total, the course should be identified as Priority C, otherwise Priority D.

Priority "E" - Non-occupational

Although offered by an occupational department, course is designed for non-occupational majors who desire acquaintance with the field as part of their general education.

In addition to the above, letters F and beyond may be used to identify special courses e.g., useful homemaking, work experience. It is suggested that work experience be given a higher occupational priority only if it is clearly part of an occupational curriculum.

II-A. Classification of Occupational Courses (continued)

Also, it should be noted that in this model there is no operational distinction between A and B Priority courses. Separate identification is included for those colleges who may wish to study their apprenticeship courses separately.

In making decisions as to which priority to assign a course, note that there are three factors to be considered:

(1) the degree to which the course identifies its taker as an occupational major.

(2) level of the course in an occupational program.

(3) percent of students taking the course who are judged occupational majors.

It is recommended that the following guidelines be used:

Factor	PRIORITY LEVEL			
	A or B	C	D	E
(1) Ability to identify major	Clearly labels taker as a major in specific occupational program	Indicates the taker is a major in one of several programs in a broad occupational area	Suggests that taker is possibly an occupational major, but area is unknown	Indicates taker to be a non-occupational major
(2) Course level	Advanced occupational (B) Apprenticeship (A)	Second level occupational	Introductory occupational	Introductory Non-occupational
(3) Expected number of occupational majors in class	100%	75% or more	Below 75% but above 25%	25% or below

For a course to be assigned a particular level rating, it should meet each of the three criteria for that level or for a higher occupational level.

Thus, for a course to receive an "A" or "B" priority it should be an advanced level occupational course limited to majors in a specific occupational program.

II-A. Classification of Occupational Courses (continued)

For a course to receive a "C" rating, it could be any one of the following:

(1) a second level or advanced level occupational course required in several specific majors within a broad area.

(2) an advanced level occupational course designed for one specific major, but which permits a significant number of non-majors to enroll.

(3) a course limited to majors in one specific occupational program but not of advanced level.

Any other course which attracts students of whom at least one-fourth may be judged occupational majors (by some standard) should be labeled "D" priority.

Following are some examples (for illustrative purposes only) of possible classifications of courses:

(Priorities indicated are those which would probably be assigned by most colleges offering the named courses; see below for some particular examples of exceptions).

A. Apprenticeship Courses

Carpentry, Plumbing, Machine Shop

B. Courses Which Indicate a Specific Major (advanced occupational)

Dental Pathology, Advanced Video Tape, Advanced Applied Acting, Legal Secretarial Procedures, Contact Lens Laboratory, Advanced Radiology Technology, Fire Hydraulics, Livestock, and Dairy Selections, Real Estate Finance, Cost Accounting

C. Courses Which Indicate A Broad Area Major (continued)
(clearly occupational)

AREA *	COURSE
01 Agricultural	Soils
04 Distributive Education	Credits and Collections Principles of Advertising, Air Transportation
07 Health Occupations	Clinical Techniques, Principles of Patient Care
09 Home Economics	Food and Nutrition, Sanitation/Safety
14 Office Occupations	Shorthand, Small Business Management, Advanced Typing
16 Technical Education	Technical Engineering, Vacuum Tube Theory
17 Trade and Industrial	Fundamentals of Air Conditioning, Basic Electricity

D. Courses Which May Indicate Occupational Major
(possibly occupational)

Technical Mathematics, Graphic Communications, Elementary Mechanical Principles, Fundamentals of Electronics, Typing (Beginning or Intermediate), Accounting (Beginning).

E. Survey or Exploratory Courses
(not occupational)

Introduction to Home Economics, Introduction to Business, Introduction to the Theatre.

It should be emphasized that the above are illustrations only. Course title alone is not sufficient to determine course priority as courses with the same title but at different colleges may be quite different in content.

* Broad areas need not be limited to the Voc-Ed categories illustrated here.

Following are some hypothetical examples of courses which might present difficulty in prioritizing:

(1) Math. AAA, an elementary course limited to Electronics Technician majors, taken usually in the first semester.

Since this course is an elementary level course, it should not be classified as "B" priority. "C" priority is more appropriate, even though the course clearly labels the taker as a major in a specific occupational area and 100% of the students taking the course can be expected to be occupational majors.

(2) Math. BBB, an advanced level course limited to Electronics Technician majors.

This course meets the requirement for "B" level priority.

(3) Anatomy CCC, a course in general anatomy but reserved primarily for Nursing (AA degree) students.

This course could qualify for a "C" priority if 75% or more of the students are Nursing (or other 2 year health curriculum) students. If more than 25% but less than 75% are Nursing students, priority "D" is appropriate; if 25% or less, course should be classified as non-occupational.

(4) Typing DDD, a beginning course in general Typing.

If more than 25% of the students enrolled are judged to be occupational majors, the appropriate priority is "D"; otherwise "E".

(5) Accounting EEE, a course in principles of accounting.

This is another course which might be assigned "C", "D", or "E" priority, depending upon the make-up of students taking the course.

Experience to date in the use of the SAM model has indicated that certain modifications in the above coding procedures can be useful in providing certain types of information to a particular college. Here is a description provided by one district* of one of those modifications:

> "By coding all courses that qualify as "Consumer and Homemaking" with the alpha code of "F", the enrollment totals may be selected for reporting on Schedule F for the final claim.
>
> Information about these same courses identifies teachers as required on the reporting form "VE47".
>
> The student characteristics information needed in writing the annual report on vocational education projects can be facilitated by this coding and reporting.
>
> By using the CID number 1499 for all consumer and homemaking courses and SAM coding these courses with an "F", the computer program will provide counts for reports. The conversion table of CID to USOE should be coded for the USOE number 09.0100. The data is accommodated in the same manner as the occupational course data is accommodated with the exception that the prioritization is limited to one category.
>
> Non-duplicated counts are possible, class hours are accumulated, and a.d.a. totals can be reported.
>
> Under the current SAM Computer Program, the computer will "reject" all "F" codes. The program must be adjusted to accept the codes.

Another college** reports that an expanded definition of the A level priority to include what is called an "absolute identifier" has been found useful.

Neither of these two modifications affect the basic structure of the classification system, and colleges are encouraged to adopt these or similar modifications if they prove to be useful and do not compromise the basic principles of the model.

* for further details, contact Dr. Robert Thompson of the Foothill District.

** for further details, contact Mr. Walter Brooks at Shasta College.

II-B. Identification of Occupational Student Majors

For the planning and evaluating purposes of this model, student majors are classified four ways: (see diagram).

Class 1 - Occupational major, specific major determined.

All students enrolled in one or more courses labeled A or B.

Class 2 - Occupational major, broad area determined.

All students who are not enrolled in any course labeled A or B, but are enrolled in one or more courses labeled C.

Class 3 - Occupational major, area not determined.

All students who are not enrolled in any course labeled A, B, or C above, but who are enrolled either in (a) one course labeled D and a total of 7 units or less, or (b) two or more courses labeled D.

Class 4 - Non-occupational major.

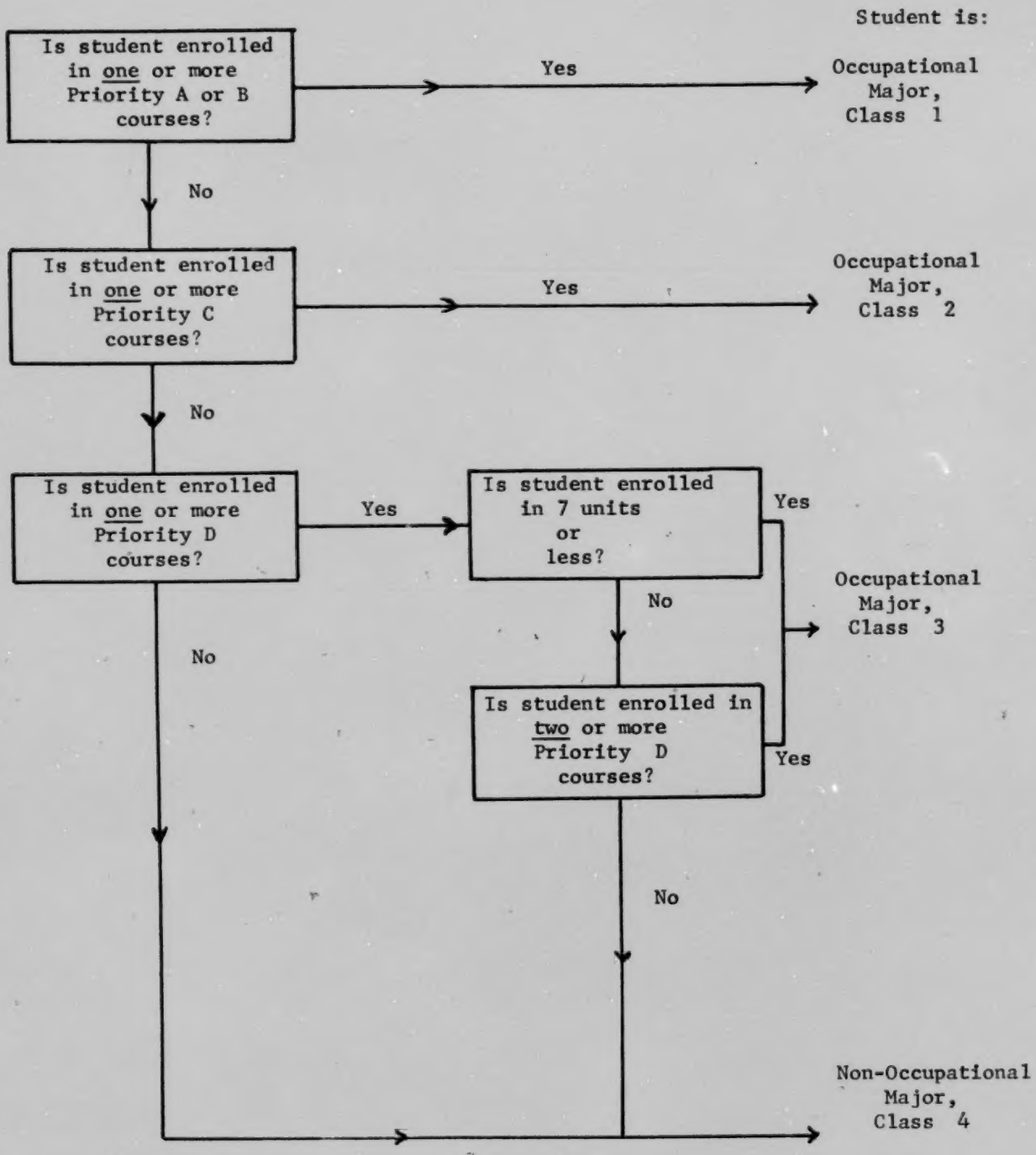
All students not classified above.

Note that part-time, full-time or day, evening distinctions are not made. Procedures for identification of student majors should be applicable to all these groupings.

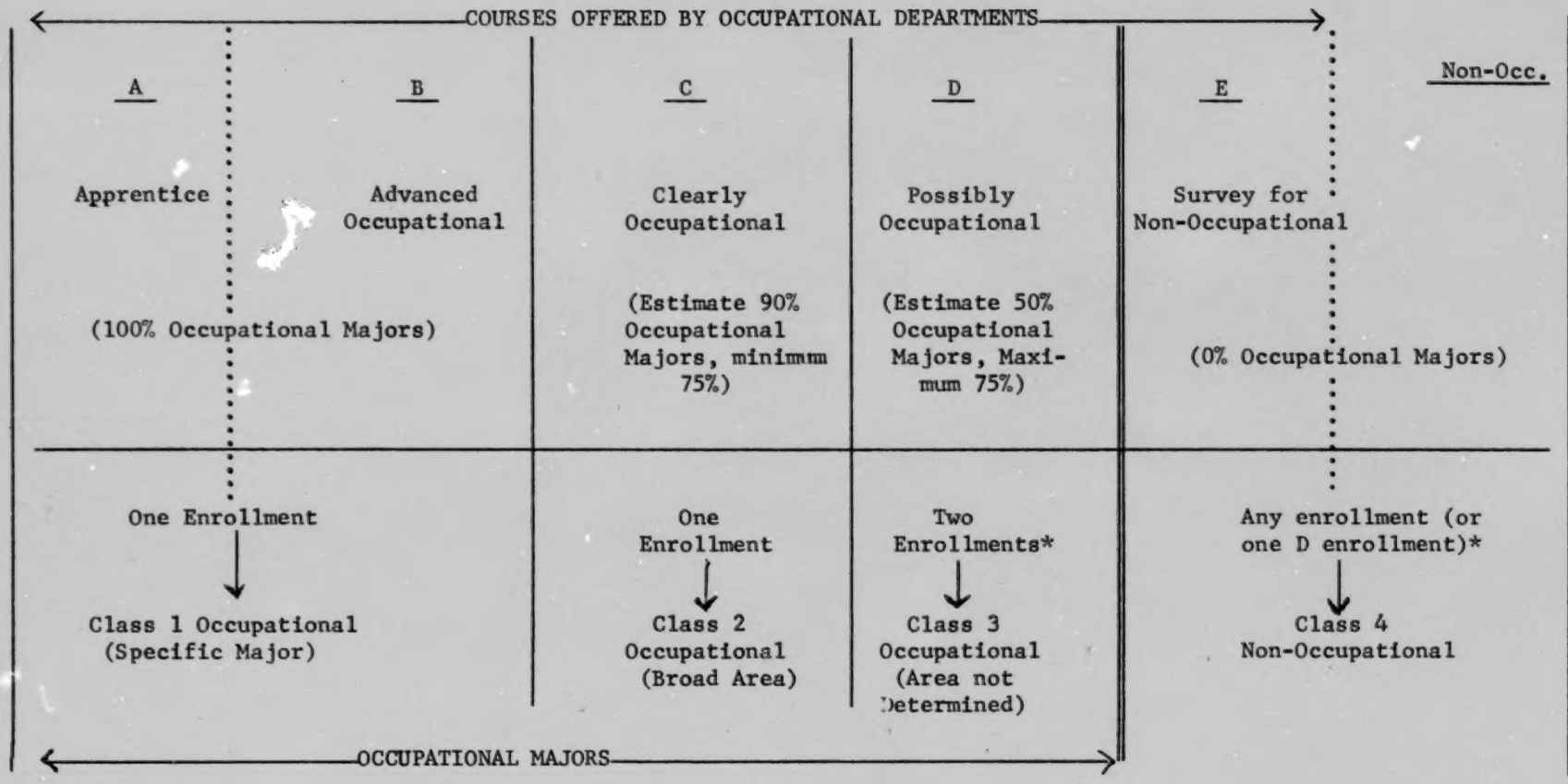
On the next two pages are a flow chart indicating the method for placing students in the appropriate classes, and a tabular presentation indicating the steps in classifying courses and determining student majors.

Follow-up techniques to be described later depend heavily on proper placement of students into the four classes, and we emphasize again the importance of careful classification of courses.

DETERMINATION OF STUDENT MAJOR



CLASSIFICATION OF COURSES



20

DETERMINATION OF STUDENT MAJOR

21

* One D enrollment qualifies a student for Class 3 if his total enrollment is 7 units or less

II-C. Data for VOC-Ed Form CCOE48

For the evaluative and planning purposes of the model, occupational majors in Classes 1, 2, and 3 will be considered according to their class designation (see Section II-D).

For the purposes of the CCOE48 (number of students in Occupational Education) reporting form, the total of all occupational majors (Class 1, 2, or 3) should be reported in the area indicated by the CID* or USOE number. If a student's major is not uniquely determined because of enrollment in two or more courses of the same priority but with different numbers, the college or district should determine a method for making the assignment. It is suggested that students be contacted (through a teacher or counselor) requesting that they indicate a choice or, if the numbers are not too large, that they be arbitrarily placed by the occupational administrator or by arbitrary computer assignment.

An unduplicated listing of occupational students (OML) and their majors can now be prepared (shortly after census week) for each semester (or quarter).

It is assumed in this model that there exists (for each semester or quarter) a periodically updated student master file (SMF) indicating characteristics of students necessary for identification of special groups. For completion of the Vocational Education forms considered in this manual, the SMF should contain the items indicated in the table showing minimum elements needed (p. 18). Not all colleges will have all these characteristics indicated on the SMF. It is suggested that these missing items be put on the file where possible. For those items which can not be put on the SMF, calculations (or estimates) will have to be provided by whatever means are available and feasible.

The following procedures ** are required to obtain the numbers necessary for the CCOE48 form: (see diagram).

(1) merge the Fall SMF and the Fall OML to obtain counts for Fall
(2) merge the Spring SMF and the Spring OML to obtain counts for Spring
(3) to obtain total (unduplicated) counts, add Fall and Spring counts, then subtract students on both semester lists (see diagram on page 17)

* CCOE48 requires USOE program numbers. Colleges using CID numbers can adjust by using CID-USOE equivalency table provided by the Chancellor's Office.

** Additional (but similar) procedures are required for colleges on the quarter system.

II-C. Data for Voc-Ed Form CCOE48 (continued)

In obtaining unduplicated counts for students enrolled in both Fall and Spring semesters, the following is recommended:

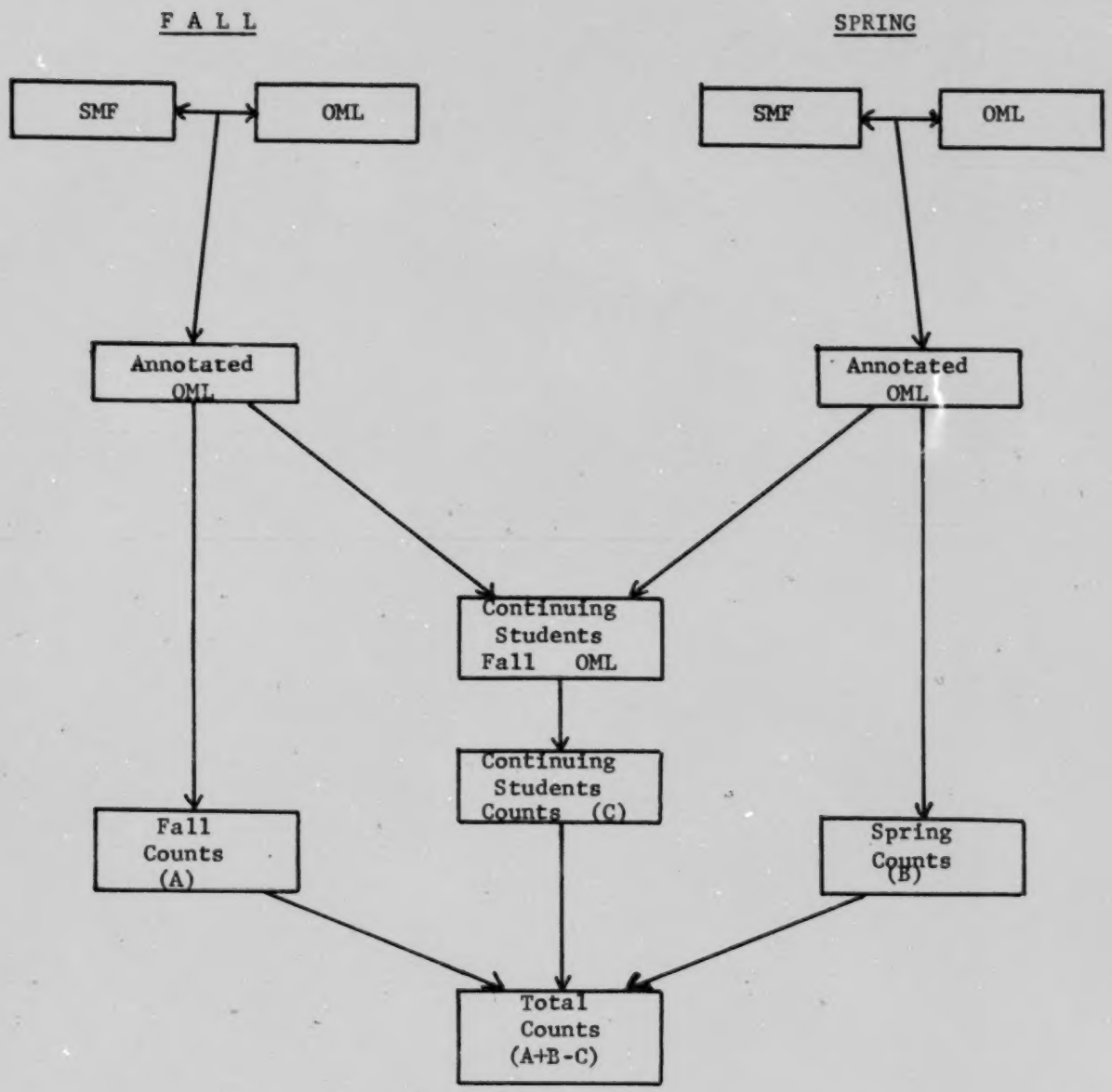
(a) if the student's major class (1, 2 or 3) is the same for both Fall and Spring, but his (or her) USOE numbers are not the same, the Spring USOE number should be the one used.

(b) if the student's major class assignment for Fall differs from that for Spring, the USOE program number for the higher ranked class (lower numerically) should be the one used.

Several examples follow:

Student	FALL		SPRING		USOE Program Code to be used in CCOE48
	Class	USOE Prog. No.	Class	USOE Prog. No.	
A	1	16.0399	4	Non-occup.	16.0399
B	4	Non-occup.	3	17.1501	17.1501
C	2	17.0401	3	17.04	17.0401
D	3	04.01	3	16.01	16.01
E	3	14.01	1	14.0105	14.0105
F	2	04.19	2	01.03	01.03
G	1	07.0301	2	07.07	07.0301

DATA FOR CCOE48 (SEMESTER SYSTEM)



MINIMUM ELEMENTS NEEDED FOR STUDENT MASTER FILE (SMF)
(for completion of Voc-Ed forms)

1. Name
2. Address (including telephone number)
3. Social Security number (or other ID #)
4. Birthdate
5. Sex
6. Current course enrollments (updated during semester)
7. Course grades (at end of semester)
8. Total cumulative units completed (to identify 1st year, 2nd year, other)
9. Status: regular, adult preparatory, adult supplement
10. Identifiers for the following (where applicable):
    - (a) disadvantaged*
    - (b) handicapped
    - (c) minority group
    - (d) cooperative work experience
    - (e) Part H Work Study
    - (f) Part D Exemplary
11. Date Associate Degree awarded (if any)
12. Date program certificate received (if any)

* see Appendix A

III. STUDENT FOLLOW-UP COMPONENT

In the Student Follow-up Component, non-continuing students are classified two ways: (1) according to their major class, as described earlier, and (2) according to their accomplishment during the previous semester. Thus a two way "follow-up matrix" is obtained. Procedures for follow-up are recommended, with procedural specifics dependent upon the student's location in the follow-up matrix.

III-A. Classification of Previous Semester Students

After census week, current semester SMF and previous semester SMF (end of semester) should be matched. The following definitions pertain:

Continuing student: student named on both lists
Non-continuing student: student named on previous list but not on current list

Non-continuing students are further classified as one of the following, depending on accomplishment during the previous semester:

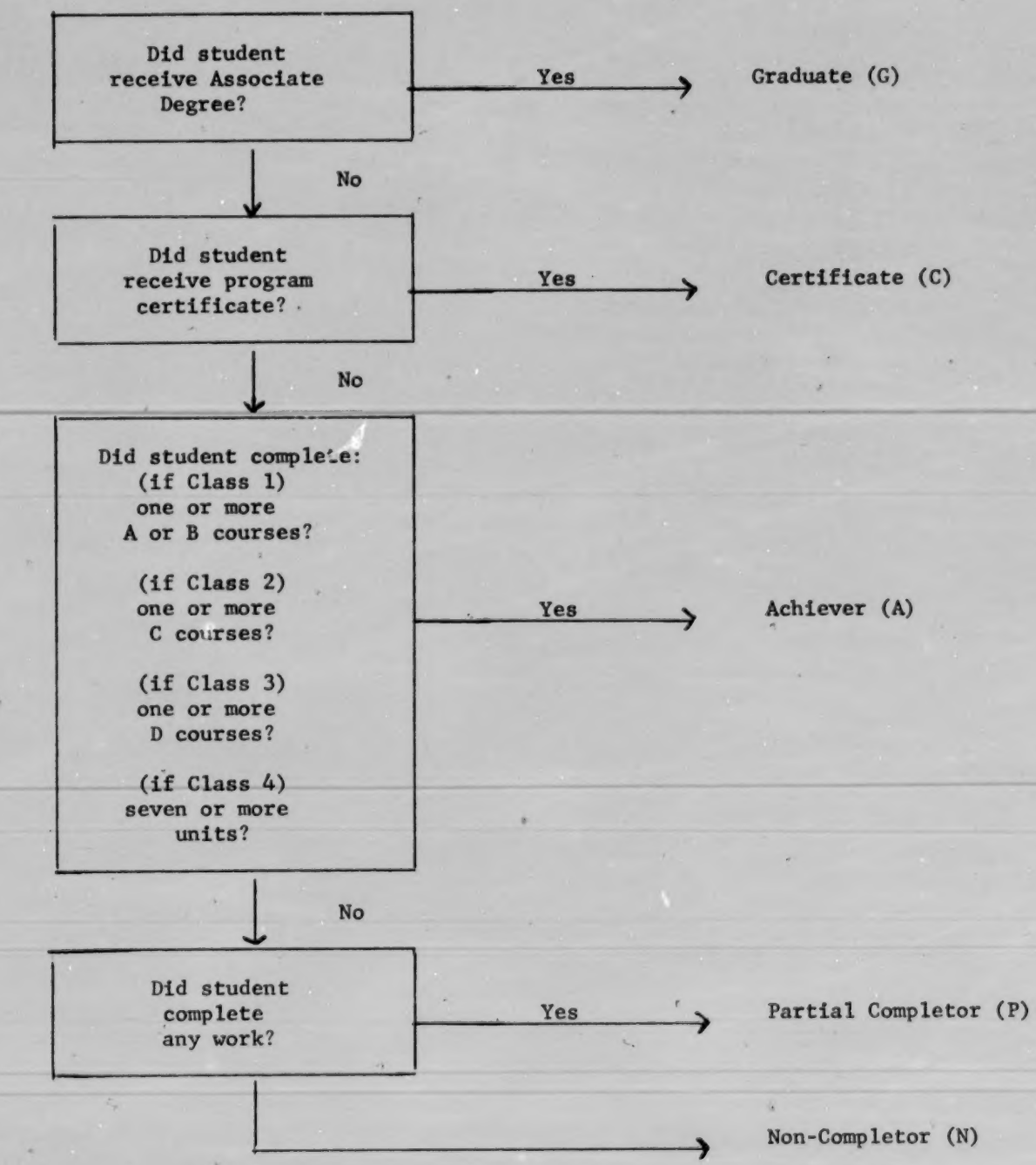
Graduate (G)	received Associate Degree
Certificate (C)	received program certificate
Achiever (A)	does not qualify as graduate or certificate but:
Priority A or B	completed one or more priority A or B courses
Priority C	completed one or more C priority courses (no A or B)
Priority D	completed one or more D courses (no A, B, or C)
Non-occupational*.....	completed seven or more units (no A, B, C, or D)
Partial Completor (P)	completed some work but does not qualify as graduate, certificate, or achiever
Non-Completor (N)	does not qualify for any of the above

For the purposes of Form CCOE45, (Follow-up Students completing Preparatory Occupational Education Programs), Graduates, Certificates and Priority A or B Achievers will be considered to have completed their programs. Priority C Achievers and Priority A or B Partial Completors will be considered to have left the program with marketable skills. Numbers obtained for Fall and Spring are simply added to obtain year totals.

* Non-occupational majors are not included in the model. Inclusion here is for completion and is a suggestion only.

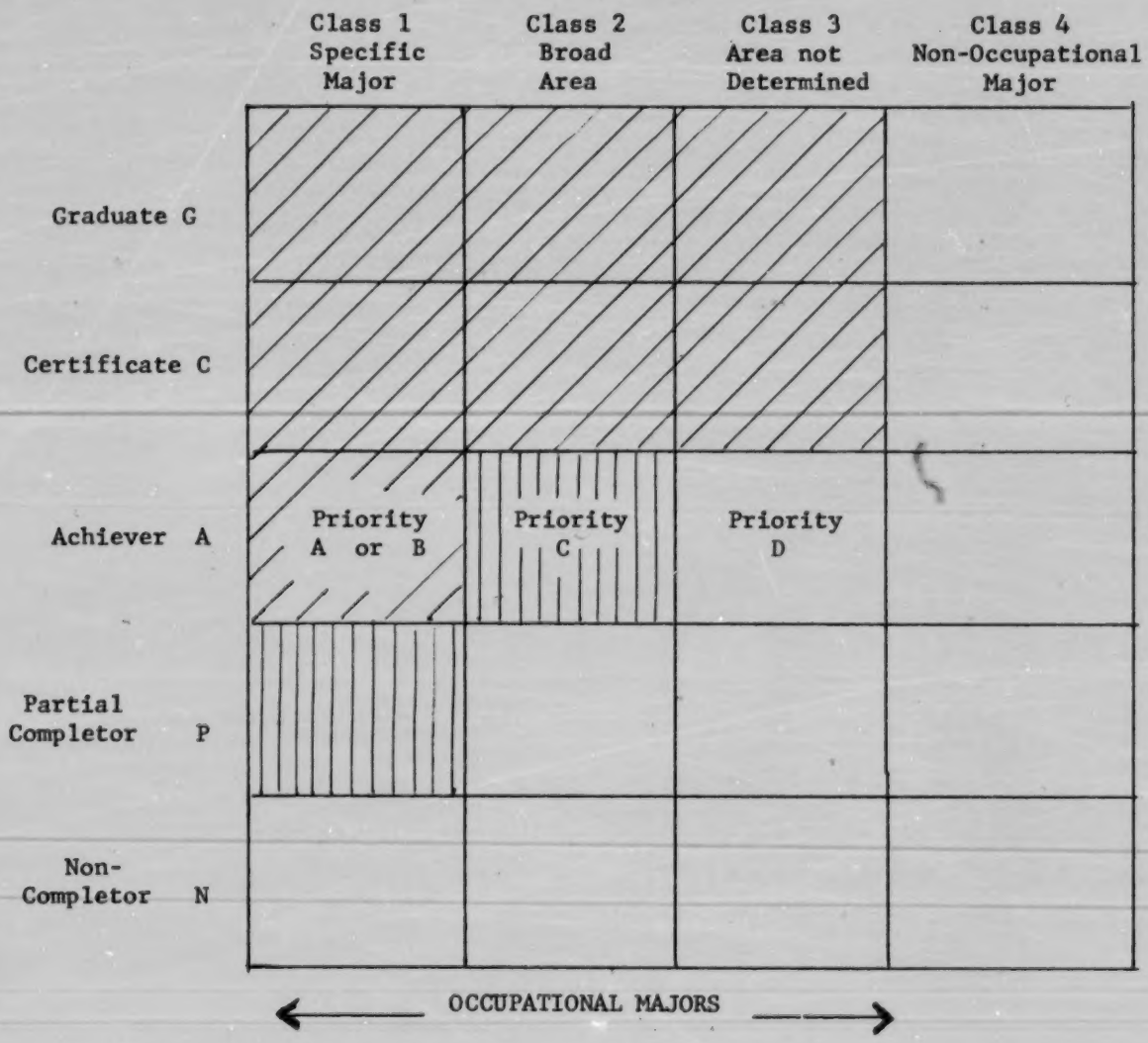
CLASSIFICATION OF NON-CONTINUING STUDENTS
(Flow Chart)

During previous semester:



III A-1 Classification of Groups for Follow-up:
(The Follow-up Matrix)

The following groups can now be identified for appropriate follow-up:



III-B. Follow-up Procedures for Groups Identified in III-A

III-B-1. Selection of group(s) to be followed:

Choice of group(s) to be followed will depend on the purposes for which the study is made. As stated earlier in the model, two purposes are considered:

(1) completion of reporting forms required for governmental agencies, and

(2) program evaluation and planning.

For the first of these purposes (specifically CCOE45), all occupational graduates, certificates, and achievers Class 1 must be included (also, achievers Class 2 and partial completors Class 1 must be counted).

For the second purpose, any or all categories may be included, depending on the needs or desires of the college at the time.

Keeping in mind the guidelines for the model stated earlier, following is an example of a possible pattern for short range follow-up for a large college:

Category	Class	No. to Contact	How Often
Graduates	1,2,3	All	Annually**
Graduates	4	All	Biannually
Certificates	1,2,(3,4)*	All	Annually**
Achievers	1,2	All	Annually**
Achievers	3,4	Sample	Biannually
Partial Completors	1,2,3,4	Sample	Biannually
Non-Completors	1,2,3,4	Sample	Biannually

* very likely no student will fall into these categories

It is also possible (and probably advisable) for further breakdowns to be made for detailed indepth follow-up studies. For example, one might wish to obtain more detailed follow-up information on, say, electronics graduates one year, allied health graduates the next year, etc. If it is not possible to make studies on all non-continuing students routinely, such procedures could provide balanced information over a period of a few years.

** Annual follow-up is required by CCOE45. More detailed study could be scheduled less often.

III-B-1. Selection of group(s) to be followed (continued)

Responsibility for follow-up will depend upon the general assignment of responsibilities at the college. At some colleges, it may be appropriate for the Occupational Dean's Office, at others the Research Office, at others the Counseling or Placement Office. Where specific program majors are to be probed in depth, it is often appropriate for faculty or department chairmen to conduct the study. If sampling is to be used, someone with a clear understanding of bias and sampling error should be involved.

It should be emphasized that the above pattern is presented as only one of many possible patterns. It should also be emphasized that without a carefully designed pattern and commitment to its implementation, follow-up is likely to be haphazard and piecemeal, with a low probability of producing solid, useful information for program planning and modification.

III-B-2. Preparation of Students for Follow-up

Researchers who have performed follow-up studies consistently report that preparation of students while still in college provides measurable and significant improvement in (1) response rate to mailed questionnaires, and (2) completeness and accuracy of responses. Efforts are apparently especially needed for young students and for non-completors.

One writer has characterized two types of recommended preparation:

(a) mechanical, involving such items as verifying and/or updating addresses, completing EXIT forms, and generally making sure that pertinent information is on file at the college while the student is there to provide it, and

(b) psychological, or "conditioning" the student to respond to future requests for information.

Following are some suggestions:

(1) to alert Class 1 or Class 2 majors (all categories except N), allow 10-15 minutes of time in each A, B, or C priority class shortly before the end of the semester and

(a) inform students of possible future contacts, emphasizing

1. college interest in individual's opinions
2. requirements for obtaining funds
3. opportunity to assist future students
4. no individual identification in any published reports

III-B-2. Preparation of Students for Follow-up (continued)

(b) suggest student include college among people to be notified when he changes address -- point out various benefits to him when college can contact him easily.

(c) if possible show student copy of questionnaire he may receive.

(d) obtain information about plans for next semester, current address and phone number, and address of someone who will always know student's address (see sample In-Class Questionnaire).

Note that it is possible to obtain considerable "follow-up" information before the student leaves college. For example, students who already have jobs lined up can provide COOE45 information and thus be excluded from later mailings for that purpose.

(2) to alert Non-completors, institute a procedure encouraging Exit Interviews. At the same time the student withdraws obtain pertinent information and alert student to possible follow-up requests. (See sample Exit Interview form). Although some students will just disappear, this number can be minimized by consistent college-wide efforts, e.g., announcements in registration packet, college newspaper, bulletin boards, etc. urging students to protect their records by following appropriate withdrawal procedures.

(3) to alert others, send letter as soon as non-attendance is determined, explaining importance of feedback information and requesting student to (a) keep college posted as to his address, and (b) respond when contacted (see Follow-up Alert letter).

As in other aspects of the model, individual colleges and individual programs within a college may require different approaches. The above are listed as suggestions to be tried when deemed appropriate, but the principle of preparation of students for follow-up while still in college has been demonstrated to be sound and it is strongly recommended that various procedures be tried with enthusiasm and creativity.

III-B-3. Study Design

It is obvious that one particular detailed plan for following non-continuing students cannot suffice for all students in all programs in all colleges at all times.

Study Design (continued)

However, research and experience indicate that the general procedures indicated in the accompanying flowchart are usually appropriate and feasible. Specific procedures for each step in the flowchart will depend upon many things, including numbers of students involved, available resources, time frame limitations, types of information desired, and, in general, the purpose of the particular study.

Notes on General Flowchart for Follow-up

(1) Prepare Follow-up Matrix

The follow-up matrix described in Section II-A can be prepared shortly after census week in any semester (or quarter), as soon as non-continuing students can be identified. The student's major class (horizontal in the matrix) should have been identified during the previous semester, and his non-continuing status (vertical in the matrix) is determined by his accomplishment that semester. Each student can now be identified by a number (1, 2, 3, or 4) indicating his major class and by a letter (G, C, A, P, N) indicating his non-continuing status. There are thus twenty cells in the matrix into which a student could be placed, and a simple count would produce the number of students falling into each. Depending upon the college's long-range follow-up plans, it may or may not be advisable to analyze in further detail (by specific major) the distributions in the various cells.

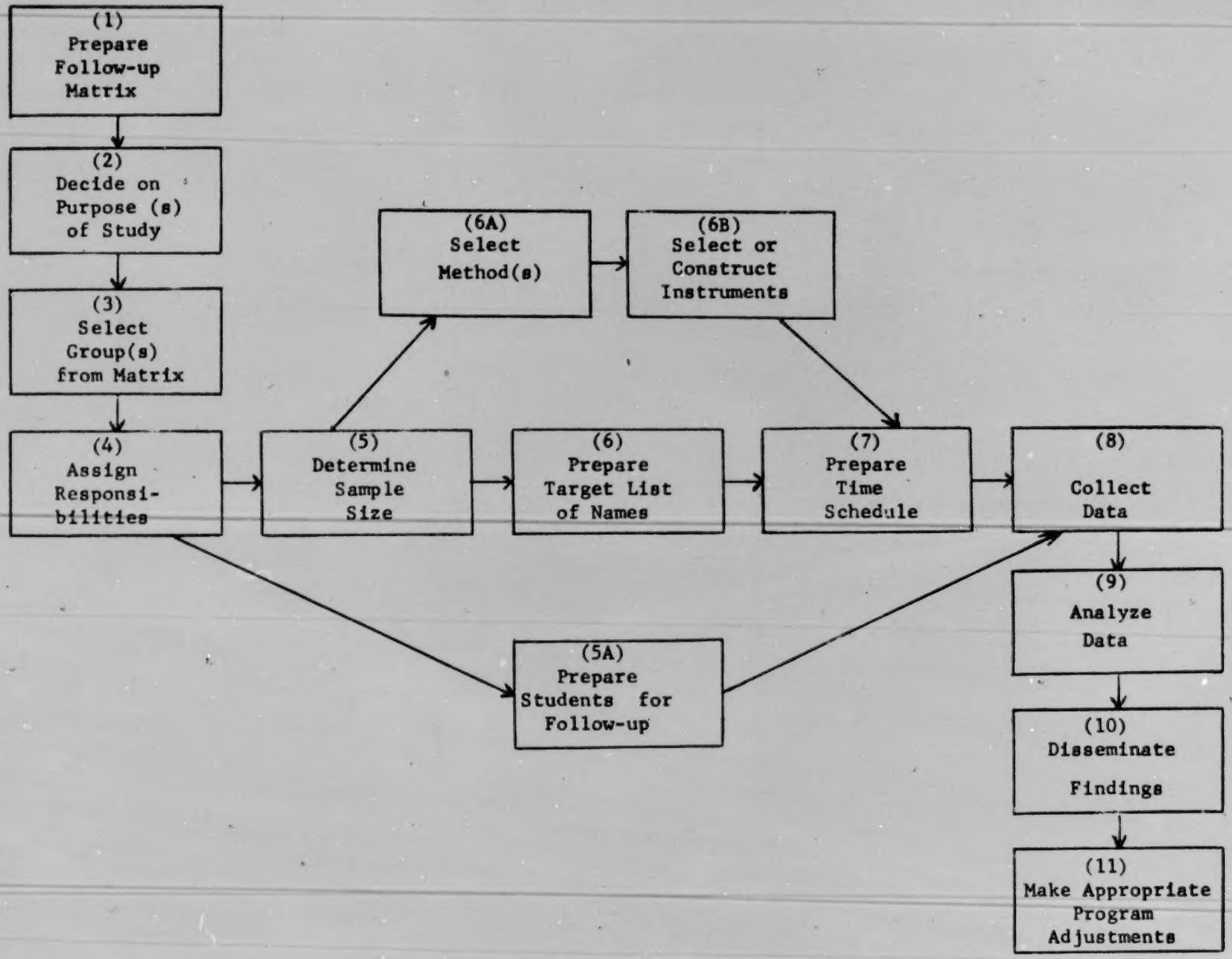
(2) Decide on Purpose(s) of Study

After observing the numbers in the various cells of the follow-up matrix, specific purposes of the study should be formulated. These purposes may or may not be dependent upon these numbers. Purposes may have been clearly delineated in a prepared detailed follow-up plan such as suggested in Section II-B-1, or they may be dictated by the numbers in the cells. For a particular semester, the purpose may be simply to obtain information for the CCOE45 form, or it may be to analyze in depth graduates of one or more particular programs, or it may be to obtain information regarding non-completors -- or a variety of other purposes.

(3) Select Group(s) from Matrix

If the purpose of the study is limited to obtaining data for completion of the Vocational Education CCOE45 form, certain specific cells in the matrix will have to be chosen (see Section II-C). If the purpose is program evaluation and planning, selection of groups will depend upon the purposes decided upon in step (2). (Some suggestions are offered in Section II-D).

GENERAL FLOWCHART FOR FOLLOW-UP


(1) Prepare Follow-up Matrix
(2) Decide on Purpose (s) of Study
(3) Select Group(s) from Matrix
(4) Assign Responsi-bilities
(5) Determine Sample Size
(6A) Select Method(s)
(6B) Select or Construct Instruments
(6) Prepare Target List of Names
(7) Prepare Time Schedule
(8) Collect Data
(5A) Prepare Students for Follow-up
(9) Analyze Data
(10) Disseminate Findings
(11) Make Appropriate Program Adjustments

Notes on General Flowchart for Follow-up (continued)

(4) Assign Responsibilities

As indicated earlier, general responsibility for follow-up will depend upon situations existing at the particular college (or district). At this stage in the flowchart it is essential that one particular individual (or several, if the work is to be partioned by program or department) be designated to direct the details of the particular study. It is also important at this stage for the study director to know what resources will be available to him in terms of budget, personnel, time, and data processing facilities.

(5A) Prepare Students for Follow-up

One of the first assignments of the study director should be to determine what has been done in the way of student preparation for follow-up, assess its scope, and plan to remedy as much as possible any deficiencies he may find. It is to be hoped that after a semester or two, each college will have developed and implemented plans for follow-up preparation along the lines suggested in Section II-B-2. The study director should be aware of what has been done and realize that preparation is possible until data is actually collected from the students.

(5) Determine Sample Size

After the decision is made as to which cells in the follow-up matrix are to be studied, the next step in the study procedure is the determination of the number of students to be contacted -- whether all or only part of them. A discussion of the use of sampling in follow-up studies is presented in Appendix A of this manual and its reading is recommended. Suffice to say at this point that several factors must be weighed in arriving at a decision regarding sampling: (1) the overall scope of the study; (2) resources available; (3) the degree of generalization envisioned; (4) the number and variety of majors to be included. Before rejecting sampling techniques completely, it might be well to reflect on the fact that professional measurers of public opinion now can and do make statements with demonstrated precision about millions of people by obtaining data from only a few hundred.

(6) Prepare Target List of Names

Following the sampling decision, the study director now has two tasks to perform in the sequence leading to completion of the study: (1) select the method(s) to be used (see 6A below); and (2) prepare a target list of names of former students to be contacted. This list can (if desired) be prepared in the form of mailing labels, which can be designed to include codes indicating major, sex and/or other desired characteristics.

Notes on General Flowchart for Follow-up (continued)

(6A-B) Select Method(s), Select or Construct Instruments

It is expected that in most studies at most colleges, mailed questionnaires will be the most feasible vehicle for obtaining data from former students. Other possibilities are telephone or in-person interviews, or combinations of any of the three. Following are some suggestions, gleaned from the literature, for preparing instruments and conducting a follow-up study by mail:

1. design the instrument to require the minimum possible time to complete
2. use as few words as possible in asking the questions
3. use familiar words, don't abbreviate, avoid long expressions
4. use two simple questions rather than one complex one
5. avoid hints as to desirable or expected answers
6. phrase questions to avoid academically or socially acceptable responses
7. place easiest to answer questions near the beginning
8. sequence questions to conform with respondent's way of thinking
9. plan method of tabulating results during questionnaire preparation
10. consider using double postcard for brief questionnaire
11. observe parallelism and exclusiveness in multiple-choice questions
12. make directions brief but complete and set off with distinctive lettering
13. state a deadline of about ten days after mailing
14. don't ask a question unless it clearly relates to the purpose of the study
15. indicate endorsement of the questionnaire by someone held in high esteem by the recipient
16. try out your questionnaire on a few people before you finalize it
17. send questionnaire so it will arrive early in the week
18. if a second mailing is performed, enclose another questionnaire
19. send any second mailing about two weeks after first mailing
20. enclose accompanying letter (except in double postcard mailing), briefly explaining the project and motivating the recipient to respond
21. enclose a self-addressed,postage paid envelope
22. give prime consideration in designing the questionnaire to motivating its return, secondary consideration to data processing requirements
23. if deemed necessary, assure respondent that names will not be used in any published reports; however, most researchers agree that anonymity is not critical in response rates and it is advisable to be able to make a second contact with non-respondents, thus requiring some kind of identification
24. use different color questionnaires for groups you want to study separately

(7) Prepare Time Schedule

After the target list of names is prepared and methods and instruments are decided upon, the study is ready to "go." It is suggested at this point that the study director prepare a rigid time schedule for the various steps in the study implementation. Deadline dates can be set in accord with the following time estimates.

ACTIVITY	DAY
1. mail questionnaire	1
2. mail second questionnaire (optional)	15
3. telephone non-respondents (optional)	25-30
4. collect responses, tally, and/or keypunch	3-30
5. analyze data	30-35
6. prepare and disseminate reports	36-40

Thus the study should be completed in a maximum of six weeks. Elimination of step 2 and/or 3 can reduce the time significantly but at some risk to generalizations from the study findings.

(8) Collect Data

Among the ways in which follow-up studies differ from other studies is that the data arrive over a period of time. While having some obvious disadvantages, this spread of data collection over a time period offers the advantage of utilizing a more leisurely tallying procedure. If carefully thought out formats are prepared in advance for recording the data as it arrives, secretarial help can usually keep tallies up to date during slack periods. For this reason, manual data processing may be preferable to electronic data for tallying and analyzing follow-up responses. A generally satisfactory method is to use several blank questionnaires on which to mark tallies. Each blank questionnaire could be marked to identify desired sub-groupings. For example, if sub-groups are desired for sex (male and female), status (full-time, part-time) and age (under 21, 21-25, over 25) twelve (2x2x3) blank questionnaires should be used. For additional distinctions, different colored pencils can be used. For a larger number of breakdowns, punched cards and electronic data processing equipment are probably advisable.

(9) Analyze Data

After data collection (including tallying) is completed, the study director (or someone else) must take a good hard look at the data with a view toward answering these questions:

1. What concepts that we hold about our program(s) do the data confirm or deny?

(9) Analyze Data (continued)

2. What do the data tell us about our program(s) that we didn't already know?
3. What should be done as a result of the answers to questions (1) and (2)?

There are several possible approaches to analyzing the data. Again, the specific purposes of the study, its scope, limitations on time and resources are factors which must be considered. A simple tally may suffice one time, while a sophisticated statistical analysis may be appropriate another time. A thorough analysis in one office may be best at one time, while sending relevant questionnaires* to specific program heads for their analysis may be more appropriate at another.

It is suggested that highly sophisticated statistical analyses are seldom appropriate, and it is not essential that the study director be able to perform such analyses; however, competent statisticans can nearly always be found on a college staff and their consultation is advised before drawing inferences from "close" data that might have major impact upon a program.

(10) Disseminate Findings

As in other phases of follow-up, there are no hard and fast rules about dissemination of findings -- but data in a deskdrawer or reports on a shelf are not very useful in evaluating or planning programs. The key point is that persons in position to make or influence program modifications must know the results of the study. For some, formal reports are preferred; for others, brief memoranda; for still others a simple presentation of the data in tabular or graphical form will best present the message.

(11) Make Appropriate Program Adjustments

This final step in the follow-up flowchart is the culmination of the efforts -- this is what it's all about. In one sense, this step is not part of the study, it's what should be done as a result of the study. In another sense, it is the study.

III-C. Data for Vocational Education Follow-up Form

This section presents recommended procedures for obtaining specific information required for completion of the Vocational Education Follow-up Form (CCOE45). The form requests numbers of students who have completed their programs and have left college, numbers of students who

* It is almost always appropriate to send copies of written comments to program heads

III-C. Data for Vocational Education Follow-up Form (continued)

have completed occupational programs but have left with marketable skills, and certain employment information about the program completors.

Using the concept that "completion means fulfillment of program requirements that enable a student to enter on a competitive level the occupation for which he has been trained,"* this model defines Class 1, 2, and 3 Graduates, Class 1, 2, and 3 Certificates, and Class 1 Achievers as program completors. Class 2 Achievers and Class 1 Partial Completors are considered to have left their programs with "marketable skills."

The accompanying minimum questionnaire provides a vehicle for obtaining the required employment information from completors and the accompanying flowchart outlines a set of procedures leading to completion of the form.

* p. 10, Instructions for Preparing Occupational Education Statistical Reports for 1972-73, Chancellor's Office, California Community Colleges.

OCCUPATIONAL STUDENT FOLLOW-UP QUESTIONNAIRE
(Minimum questions for CCOE45)

1. What is your present employment status?

_____ (1) working, full-time (30 hours per week or more)

_____ (2) working, part-time (less than 30 hours per week)

_____ (3) not working, looking for a job

_____ (4) not working, not looking for a job

_____ (5) military service

2. Which single statement best describes your present job?

_____ (1) in the occupation for which I prepared while in college.

_____ (2) in an occupation related to my college training.

_____ (3) in a field not related to my college training.

_____ (4) apprenticeship program (specify)_____.

_____ (5) not employed.

3. Are you attending college?

_____ (1) no

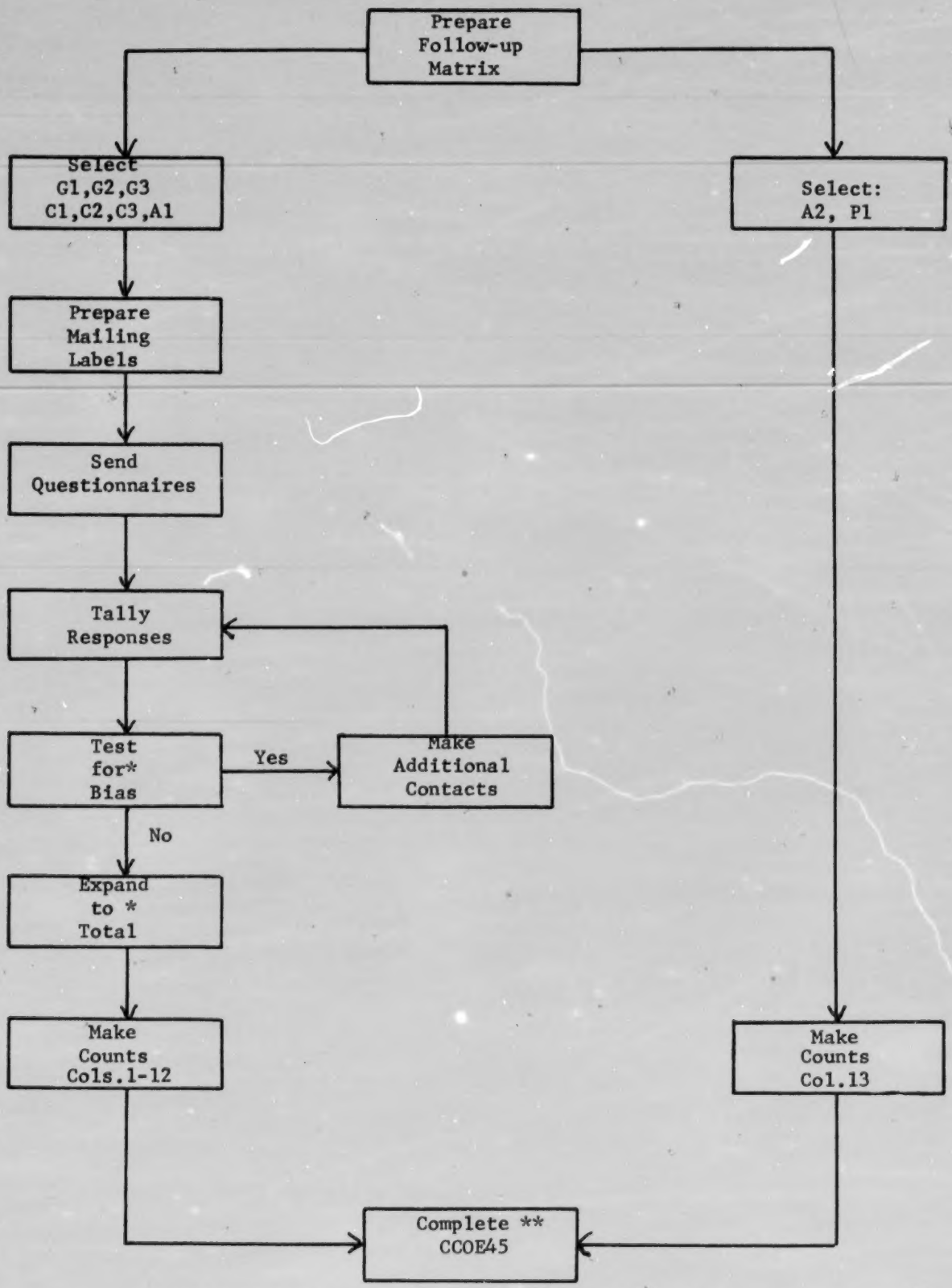
_____ (2) yes

College _____

Major _____

No. of units carried_____

FLOWCHART FOR COMPLETING CCOE45



* See Appendix B, pp. 73-75 for suggested methods

** Repeat for each semester (quarter) and totals

Notes on Flowchart for Completing CCOE45

(1) Groups to be selected from Follow-up Matrix are those defined as Program Completors (G1, G2, C1, C2, C3, A1) and those with marketable skills (A2, P1). The latter requires counts only.

(2) The form requires figures for all occupational majors according to program. Sampling is usually not appropriate for this purpose. However, it is possible that much of the information can be obtained from students during the last few days of the semester. Thus, 100% mailing (or telephoning if desired) may not be required.

(3) It is recommended that mailing labels indicating codes for sex and major be prepared and that the questionnaire be designed so that the mailing label will be returned attached to the completed questionnaire.

(4) Two to three weeks should be allowed for questionnaires to be returned. At this point some check should be made as to "bias" of responses. Some suggestions for testing response bias are given in the appendix, but a general look at distributions of sex and major, mailing areas will often be sufficient to conclude that the representativeness of the response is adequate. If bias clearly shows, it may be advisable to mail second questionnaires to and/or telephone non-respondents. Although subtle biases are difficult to detect, significant biases are usually not and responses should be at least cursorily examined before response figures are expanded to the total mailing.

(5) When assured that response bias is suitably low, percentage figures for the responses should be calculated and the products of those percents multiplied by the total numbers in the respective groups should be the numbers reported on the form.

III-D. Data for Program Evaluation and Planning

In accord with the guidelines stated at the outset, follow-up approaches are suggested in this section for five clusters in the follow-up matrix as follows:

1. Graduates, Class 1, 2, 3; Certificates, Class 1, 2, 3; and Achievers, Class 1
2. Achievers, Class 2; Partial Completors, Class 1
3. Achievers, Class 3
4. Partial Completors, Class 2, 3
5. Non-Completors, Class 1, 2, 3

1. Graduates, Class 1, 2, 3; Certificates, Class 1, 2, 3; and Achievers, Class 1

These students were identified in an earlier section as "program completors" (for CCOE45).

In order to provide information about these students which would be useful to occupational administrators, members of the consortium were requested to indicate the five most important (in rank order) questions they would like to ask occupational program completors. Questions were then resubmitted to the members, together with information as to their ranking, with a request that they be rated on a 0-100 importance scale. Following is an analysis of the results of that procedure.

"Consensus" Questionnaire for Occupational Graduates, Certificates, and Achievers

Questions were suggested by consortium members and then rated on an importance scale of 0 to 100. Figures given are median and "adjusted" range (extremes omitted) for the nine who responded. A high (low) median score indicates a high (low) level of importance. A large range indicates wide divergence of opinion and a small range indicates consensus.

Three questions are labeled "Essential" as they are required to produce data for the CCOE45 form. All had median scores of 100. Three others are labled "Highly Desirable," each with median score of 95 or above. Four are labeled "Desirable" with median scores in the 80's. The remainder are labeled "Optional."

Essential Questions
(median,range)

1. (100,0) What is your present employment status?

_____ Working, full-time (30 hours per week or more)
_____ Working part-time (less than 30 hours per week)
_____ Not working, looking for a job
_____ Not working, not looking for a job
_____ Military Service

2. (100,10) Which single statement best describes your present job?

_____ In the occupation for which I prepared while in college
_____ In an occupation related to my college training
_____ In a field not related to my college training
_____ Apprenticeship program (specify)_____
_____ Not employed

3. (100,10) Are you attending college?

_____ No
_____ Yes

College_____
Major_____
Units carried_____

Additional questions for those employed

Highly Desirable:

4. (100,20) How well did your college occupational training prepare you for skills you need on your present job?

_____poorly _____fairly well _____ very well

5. (96,20) Do you feel that your college occupational training was important to you in getting your present job?

____not at all _____some ____a great deal

6. (95,30) What is your current rate of pay*?

_____$1.99 or less per hour
_____$2.00 - 2.99 per hour
_____$3.00 - 3.99 per hour
_____$4.00 - 4.99 per hour
_____$5.00 or more per hour

Desirable:

7. (88,50) Please name the three college courses that were of most help to you in your work.

_____ _____ _____

* monthly or weekly units may be preferable if part-time and full-time workers are kept separate.

Desirable Questions (continued)

8. (86,80) Please rate the following according to your college experience.

	Excellent	Average	Poor
Class instruction	_____	_____	_____
Help from instructor outside of class....	_____	_____	_____
Program planning assistance	_____	_____	_____
Vocational information available.....	_____	_____	_____
General opinion of college.....	_____	_____	_____

9. (80,27) Which one of the following was most helpful in assisting you in obtaining your first job after leaving college?

_____ Parents, friends, relatives
_____ The college
_____ Employment agency (private)
_____ Employment agency (public)
_____ Other (specify)_____

_____

10. (80,35) Were you employed prior to taking your work at college?

Yes_____ No_____

At a lower level? Yes_____ No_____
In the same level? Yes_____ No_____

Optional:

11. (75,30) How long did it take you to find your first job after leaving college?

_____ I had it before I left college
_____ A month or less
_____ One to three months
_____ More than three months

12. (75,60) Do you plan to continue your college education to a Bachelor's degree or higher?

_____ Already have Bachelor's degree
_____ Yes, will continue right away
_____ Yes, but later
_____ Probably not
_____ Definitely no

13. (70,60) Please name the three college courses (of two units or more) that were of least help in preparing for your job.

_____ _____ _____

Optional Questions (continued)

14. (70,60) If not employed in a field related to your occupational training, was your occupational training of value to you?

Yes_____ No_____

If yes, in what way?

15. (60,30) Do you think you will return to this or any college for additional training in order to advance on the job?

Yes_____ No_____ Not sure_____

16. (60,35) How many jobs have you held since leaving college?

_____ This one is my first
_____ Two _____ Three or more

17. (55,25) What was the most important reason you stopped attending college?

18. (50,50) How long do you expect to remain on your present job?

_____ Less than one year
_____ 1 - 2 years
_____ 2 - 5 years
_____ More than 5 years

19. (50,80) Would you be willing to complete a more detailed questionnaire?

Yes _____ No_____

20. (50,80) If not employed, would you like help in getting a job?

Yes_____ No_____

(Name and address of employer is considered optional as several respondents requested its omission)

It is suggested that the minimum questionnaire discussed in the preceding section be expanded to include the questions rated as "highly desirable" and others selected by the college.

It is also suggested that, where desirable and feasible, graduates and certificates who are continuing at the college (presumably for non-occupational courses) be included in this group.

"Consensus" Questionnaire (continued)

Also, any in-depth questionnaire should provide one or more "open-ended" questions requesting comments regarding strengths and weaknesses of the particular program and/or the college in general.

In line with the assumptions stated at the outset of this manual, it is appropriate that a large share of the college resources available for follow-up studies be directed toward the cluster just described. It should by no means be inferred that other groups in the follow-up matrix should receive no attention. To the contrary, it is essential in an overall follow-up plan that information be obtained from partial completors and non-completors.

Following are some suggestions for obtaining information about other clusters indicated at the beginning of this section.

2. Achievers, Class 2, Partial Completors, Class 1

   This group was defined (for CCOE45) to be those leaving an occupational program with marketable skills. Depending upon the numbers involved, the resources available, and the pertinence at the time, this group could be sent questionnaires similar to those used above.

   Questions relating to employment status, relevance of college preparation, and opinions as to strengths and weaknesses of the college program could produce useful information. However, these students left before completion of an occupational program and questions relating to reasons for this premature (apparently) leaving should surely be included.

   Although the two groups (Class 2 Achievers and Class 1 Partial Completors) are not distinguished for reporting on the CCOE45 form, it may well be advisable to separate them for follow-up planning purposes.

3. Achievers, Class 3

   These non-continuing students completed one or more Priority D occupational courses. It is suggested that these students be contacted, possibly on a sampling basis, to determine reasons for non-attendance, opinions regarding college work, and current activities and their relation to college work. It is possible that many of these students had no intention of pursuing a two year (or less) occupational major.

4. Partial Completors, Class 2, 3

   In this group are students who were classified as occupational majors but who left without completing any occupational courses (although they completed some work). It is suggested that this group be contacted periodically, on a sampling basis, with questions designed to elicit reasons for non-completion of occupational courses.

"Consensus" Questionnaire (continued)

5. Non-Completors, Class 1, 2, 3

This group could probably justifiably be labeled "drop-outs," as they completed no work. They will probably be the most difficult to contact, but should not be ignored in the college plan for follow-up.

It is suggested that an appropriate sample of this group be followed up, with occasional indepth interviews considered as a possible method for probing into reasons for non-completion and leads for possible improvement of the college program.

It should again be emphasized that the above clustering may not be the most appropriate one for a particular college at a particular time. It is strongly recommended that each college set up procedures for routinely producing the follow-up matrix and then designing a follow-up program dependent upon the numbers in the various cells in the matrix, as well as upon particular needs and resources of the college.

III-E. Use of Student "Statement of Intention"

Experience to date in the use of SAM has validated an assumption made early in the project, viz., that a student's major will be better identified by an examination of his or her program than by a statement made by the student. It seems clear, at this point, due to the extreme heterogeneity of community college students on attributes such as age, background, aspirations, reasons for attending college, academic ability, and a host of others, that identification of a student's major by asking the student produces extremely unreliable results.

However, in spite of the student's inability (or unwillingness) to state a major consistent with his or her actions in choosing courses, evidence is accumulating that including a broad "statement of intention" question at registration each semester provides valuable information in planning follow-up studies. Separation of students according to "statement of intention" offers several advantages, among them being flexibility in constructing questionnaires (e.g., different questions can be asked of those on the job who had the job before leaving college) and a possibly better basis for sampling larger groups, e.g., non-completors.

Following is a suggested format for asking the student's "statement of intention."

Please check one of the educational objectives which best describes the reason for your course selection this semester

1. Pre-employment training

   You should describe this as your educational objective if the courses you are taking this semester have been chosen primarily to prepare you for employment. You should indicate the choice only if additional training at a four-year college is not required for jobs in this occupational area.

2. Preparation for transfer

   You should indicate this choice if the course work you are taking is primarily intended to fulfill lower division requirements at a four-year college and you plan to transfer to a four-year college upon completing your lower division course work.

Use of Student "Statement of Intention (continued)

3. In-service training

   You should indicate this choice if the course work you are taking this semester is primarily intended to improve your skills in an occupational/professional area in which you are already working or have worked.

4. General education

   If your reasons for enrolling this semester do not meet any of the objectives listed above, you should choose the general education alternative.

IV. EMPLOYER FOLLOW-UP

Introduction

Periodically a college may wish to utilize employer feedback as a part of the follow-up study for a specific occupational program. Information gained through follow-up with employers of former occupational education students can be used along with input from other contacts with employers, students, and college faculty and staff to review and evaluate the occupational preparation provided by the college. This section of the Procedures Manual provides some guidelines for conducting employer follow-up based on field test experiences at six community colleges in 1975-76.

S T E P 1 - DETERMINE THE OBJECTIVES AND SELECT PROGRAMS FOR EMPLOYER FOLLOW-UP

As a part of the decision to include employers in the SAM Follow-up study, determine objectives. There may be a single objective to:

> Gain employer feedback on the effectiveness of occupational preparation and utilize that information in program review and modification.

Your college may identify additional objectives for conducting employer follow-up, such as to:

- Improve interaction between college and industry personnel.
- Develop an accurate description of target jobs.
- Develop job markets for future program completors.

Since employer follow-up is probably not practical annually for all programs, priorities and criteria for selecting specific programs need to be established. Consideration might be given to:

- Programs with low placement levels.
- Programs experiencing marginal enrollments or completions.
- New programs experiencing first placements.
- Occupations experiencing rapid technological change.
- Programs identified in need of review by faculty and advisory committee.

Decide also the levels of occupational preparation or classes of students you want to follow-up with employers - graduates or certificates or all "completors", day and/or evening, pre-service only or continuing education or in-service.

EMPLOYER FOLLOW-UP (continued)

S T E P 2 - DEVELOP THE FOLLOW-UP PROCEDURES

Since the outcome of follow-up may be program modification and change, early involvement of college representatives who may be affected is important. The planning team will probably include program instructors and administrators. Depending on the objectives, you may also wish to have such services as counseling, placement, and work experience represented.

Design of the employer follow-up procedures will include:

Budget - from as little as $1.28 - $2.00 per employer contact to considerably more depending on the approach.

Time Line or Schedule - probably no less than three months.

Personnel requirements for coordinating, implementing, and analyzing the results of the follow-up study.

Integration of employer and student follow-up.

Students will probably be the key to identifying employers.

Student questionnaires need to be designed to accommodate employer follow-up. Find out the former student's job title (since you may wish to contact only employers of those students working in a job related to the occupational training program), the employer name and address, and the name and title of the immediate supervisor, since that person will probably have the best understanding of the occupational preparation of your former student.

If student questionnaires are not the source for identifying employers, alternate methods such as instructor or placement files will need to be used.

A student release to contact the employer will probably not be necessary since the information sought will be program rather than personal performance oriented. This is a crucial decision and needs to be clearly understood by college personnel, the former student, and the employer.

EMPLOYER FOLLOW-UP (Step 2 continued)

Timing for employer follow-up may be influenced by your SAM student follow-up schedule. Six months to one year on the job should provide enough time for a former student to demonstrate entry level skills brought to the job. In most cases, this will be too early to assess more advanced skills provided by the occupational education program. For some occupations you may want to plan for a two stage assessment -- one at six months to one year and the second after two years on the job.

Job mobility and the seasonal nature of some occupations are problems you should anticipate. Both will affect the size of the employer "universe" and your timing decisions.

Sampling generally will not be a factor in employer follow-up since the size of the "universe" will be small enough so you will wish to contact all employers. For some low enrollment programs, it may be advisable to follow-up two consecutive years to have a large enough number of employers to gain significant input.

Employer "readiness" for follow-up is just as crucial as student preparation. Utilize trade and industry associations, advisory committees, and college contacts to prepare employers for follow-up.

S T E P 3 - DETERMINE THE METHOD FOR CONTACTING EMPLOYERS

The objectives, programs selected, procedures, and resources will influence the contact method with employers.

The size of the organization, proximity to the college, and type of occupation also will affect your decision about how to contact the employer.

A variety of contact methods may need to be used. Types of contacts that might be considered include:

Mail questionnaire.

Prior telephone call to inform the employer that a questionnaire will be mailed.

Mail questionnaire with telephone follow-up:

1. With 100% of the employers responding.
2. With a sample of employers responding.

EMPLOYER FOLLOW-UP (Step 3 continued)

Mail questionnaire with personal interview follow-up.

1. With 100% of the employers responding.
2. With a sample of the employers responding.

Letter of explanation followed by telephone interview.

Personal interview only.

If some form of interview is used, the personnel assigned, whether (instructional staff, classified employees, students, or consultants) should be trained in interviewing techniques to draw in-depth information from the employer. Interviewing skill may be more crucial than program familiarity.

Reaching the right person, i.e., the former student's immediate supervisor, may be a challenge. In a larger organization, the personnel department may be a vehicle for contacting the supervisor.

100% response is the goal for employer follow-up. To achieve that goal, it will probably be necessary to follow through with non-respondents by mail, by telephone or in person after the first contact. Determine in advance the minimum response level that will provide significant input.

S T E P 4 - DESIGN THE QUESTIONNAIRE

The method and ease of tabulating responses should be considered.

Rated items and open-ended questions used in combination on the questionnaire may draw more complete information.

The questionnaire should anticipate the lack of familiarity that many employers may have with the college program. Questions should be job skills oriented rather than instructional content oriented.

A letter, if used, to explain the employer follow-up study, should be signed by a college staff member who may be known by the employer. Often, this may be an instructor.

EMPLOYER FOLLOW-UP (Step 4 continued)

Advisory committee members may provide valuable input to questionnaire and letter content and terminology.

S T E P 5 - COMPILE, ANALYZE, AND DISSEMINATE FINDINGS

It may be more practical to tabulate employer responses manually than by computer. This is especially pertinent if the universe is small and if open-ended questions are used along with rated items.

Since the intent of the input from employers is to assist with program modification and review, data should be organized into understandable, usable form.

Data analysis might include comparison of employer and student perceptions of various aspects of employment.

Findings should be distributed to instructional staff, advisory committee members, and appropriate administrators and support services personnel. The input from these knowledgeable persons should be sought and used.

Employer follow-up data may serve as an indicator that additional follow-up activities such as an in-depth study are needed.

S T E P 6 - PLAN FUTURE ACTION

The follow-up study results should be translated into specific changes or considerations that will be made.

Priorities for action and a schedule should be established.

Indicators may point to the need for a more comprehensive in-depth study of a specific occupation.

Selected sample instruments for use in employer follow-up are included in the Appendix.

V. SUGGESTIONS FOR DATA PROCESSING

During the development of the SAM system, several colleges (or district offices) devised computer programs to produce counts and/or lists of students in the four classes or in the various cells of the follow-up matrix. Some of these programs also identified random samples of students for follow-up and produced mailing labels with appropriate coding.

Approaches used at three college/districts will be described briefly in this chapter.

(1) The Los Rios District produced the first set of programs to implement the Accounting Component of the model. The Los Rios approach consisted of five steps culminating in printouts showing student counts in each of the four major classes, subdivided according to both CID and Voc-Ed codes, for Fall semester, Spring semester, and full year unduplicated counts. The five steps are as follows:

SAM - 1 Assign Course Priority

Using a college catalog of classes or a computer listing of all classes offered by a school, the campus administrator (usually the dean of vocational education) will prioritize those courses which are determined to be occupational in nature. This annotated listing is then keypunched - one computer readable record (card, etc.) for each course - containing course code, priority, local college major code, CID and USOE number. This table of vocational courses and priority are then used as input to the program which examines the students schedule and assigns priority and major dependent upon that schedule.

SAM - 2 Course Assigned Majors

Program GW299.01 builds a table in memory consisting of one entry for each course code. Each entry contains the priority code for that course, the local college major code, the CID number and the USOE number. The student master file (census week) is read and the student's class schedule is matched against the table of course priority codes. Output consists of an annotated student master file record containing the highest priority (and related major codes) in which the student is enrolled. A report containing totals by Class I, II, III, IV as defined in the Student Accounting Model, is also produced. The annotated master file is produced for both Fall and Spring semesters. Both are then input to Program GW299.02 as outlined in Chart SAM-4.

SUGGESTIONS FOR DATA PROCESSING (continued)

SAM - 3 Program GW299.01

SAM - 4 Unduplicated Counts

Annotated master files from Program GW299.01 are input to Program GW299.02 producing the following results:

1. An output master file containing non-continuing students (Fall only).
2. An output master file containing only continuing (unduplicated) students.
3. A report totaling students by Class, CID, and USOE number for Fall, Spring and Fall-Spring (unduplicated).

SAM - 5 Program GW299.02

Flowcharts for the two programs are presented on following pages.

(2) Shasta College has produced four programs to fit their data processing system, as indicated in the accompanying three flowcharts. Their programs produce, among other things, counts for the various cells of the follow-up (achievement) matrix and are described by their data processing office as follows:

On page 1 of the Flowcharts, Program SR004 represents the step where the Student Master File is updated to show the student's priority code on the basis of his classes and the course majors from the Course Master File. We then have an updated Student Master File which shows the student's priority. The Student Master File, after it has been updated, is then sorted on a combination of course priority, major code, and student name and goes into Program SR0308 to produce an extract containing only the persons that will actually be needed for the Voc-Ed study. The non-Voc-Ed students and those that do not fit the qualifications of this study are not carried forward into the extract. This extract will later be used in continued processing.

After the steps just described are completed for both semesters in the school year, we have two extracted files; one from the Fall semester, for example, and the other one from the Spring semester. On page 2 of the Flowcharts, we show these two files being processed by

SUGGESTIONS FOR DATA PROCESSING (continued)

Program SR039. This program is designed to select out the non-continuing students from the Fall semester and produce a third file that will later be used to produce a report showing the unduplicated count of students with their names and requested information. Both of these are two separate steps in the normal SAM processing but fit very nicely into this one program.

On Page 3 of the Flowcharts, we show the Student Master File once again being updated with cards that indicate the level of achievement of the student in the last semester. Since our system does not support cumulative transcript type files, we have found it necessary to have the Registrar input to Data Processing which students receive degrees, certificates, or the level of achievement attained in these areas. After this file has been updated, we can then process the Student Master File against the extract of non-continuing students. This will provide a basis of acquiring all the information necessary for the non-continuing students. With the combination of these two, we are able to produce the achievement matrix showing how many students were graduates in specific areas and how many received certificates. Also, we are able to do things, such as, produce labels for questionnaires and actual postcards that will be mailed to the non-continuing students in the follow-up process.

(3) Foothill District operates on the quarter system and has developed programs for colleges operating on this system. A brief description of their procedures and system flowcharts follow:

Quarterly Processing

Each quarter the Student Master File, CID Table and CID/USOE Equivalency Table are used to update a Vocational Students File with student characteristics data such as name, address, sex, ethnic code, etc., as needed to identify students for various categories specified on Form CCOE48 and for follow-up processing. The number of classes attempted and completed at each priority level described in the SAM Procedures Manual are retained for classification of students for completion of Form CCOE45. The occupational major code is calculated based on enrollment in specific types of classes as identified in the CID Table.

Annual Processing - Phase I

At the end of each academic year, the Vocational Students File is used to print a report which contains the

Annual Processing - Phase I (continued)

data required to complete Form CCOE48. The attributable ADA will continue to be derived from existing reports for completing the final claim.

Annual Processing - Phase II

At the beginning of the next academic year the Vocational Students File is matched against the Student Master File for Fall quarter. The records for continuing students are used to create the Vocational Students File for the next year. A Non-continuing Vocational Students File is created for follow-up processing. The Grade History File is scanned to identify students who have graduated or received Certificates of Completion for vocational programs. The Non-continuing Vocational Students File is then used to print a report containing the number of students, for each USOE Code, who completed programs, and the number of students who left the program with marketable skills. This data will be used to prepare Form CCOE45.

Using criteria supplied by the Office of Technical Education, students will be selected by the computer for participation in a follow-up study. A report is produced to indicate the number of students selected from each category so the Office of Technical Education can evaluate whether the selection criteria provide an adequate population for the study. Mailing labels and a listing of students will then be printed for all students selected.

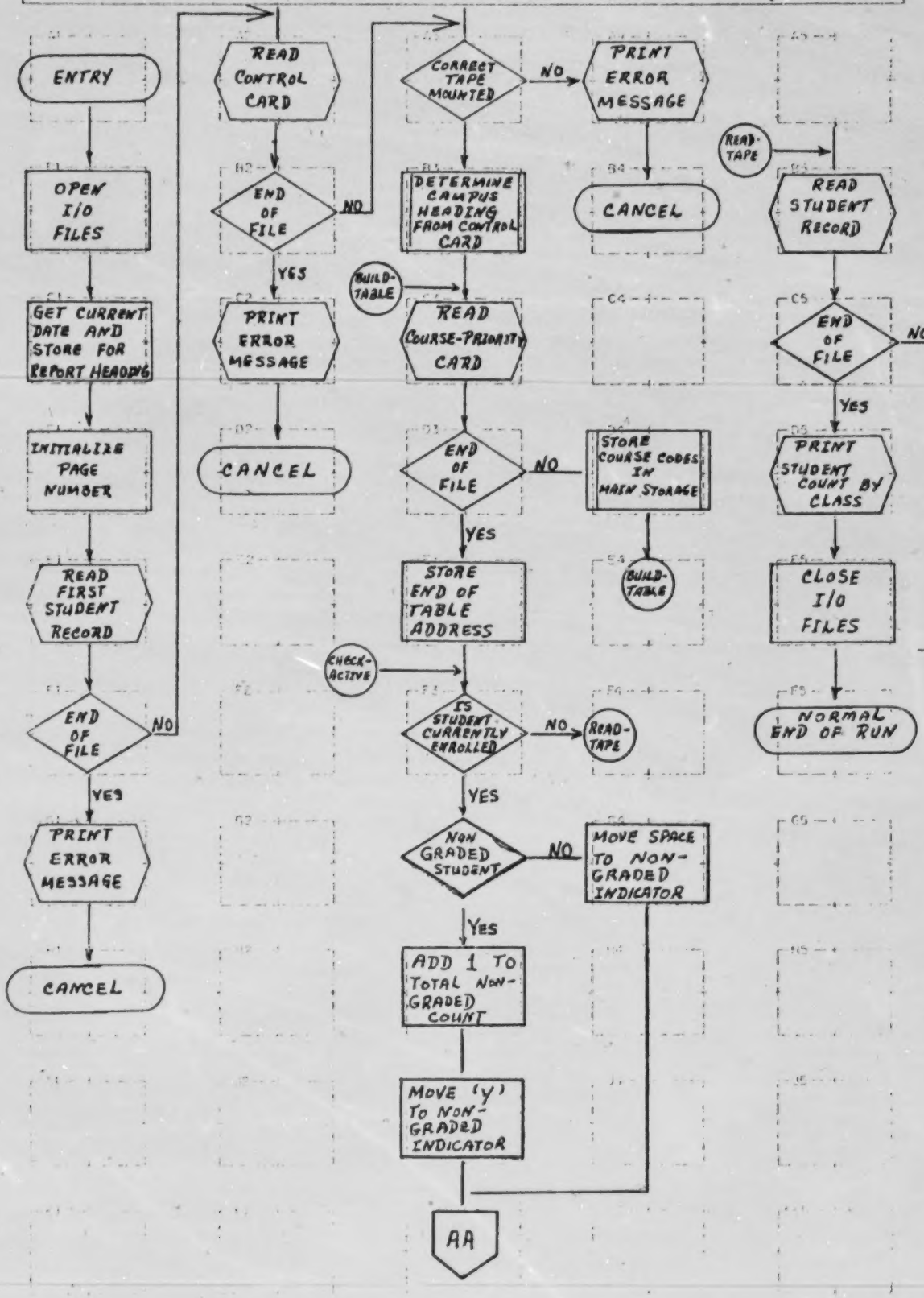
The reader is invited to contact the colleges mentioned above for details of the programs referred to.

LOS RIOS FLOWCHARTS

IBM Flowcharting Worksheet

Programmer: WILLIAM J. WELLS Program No.: GW299.01 Date: 03/07/74 Page: 1

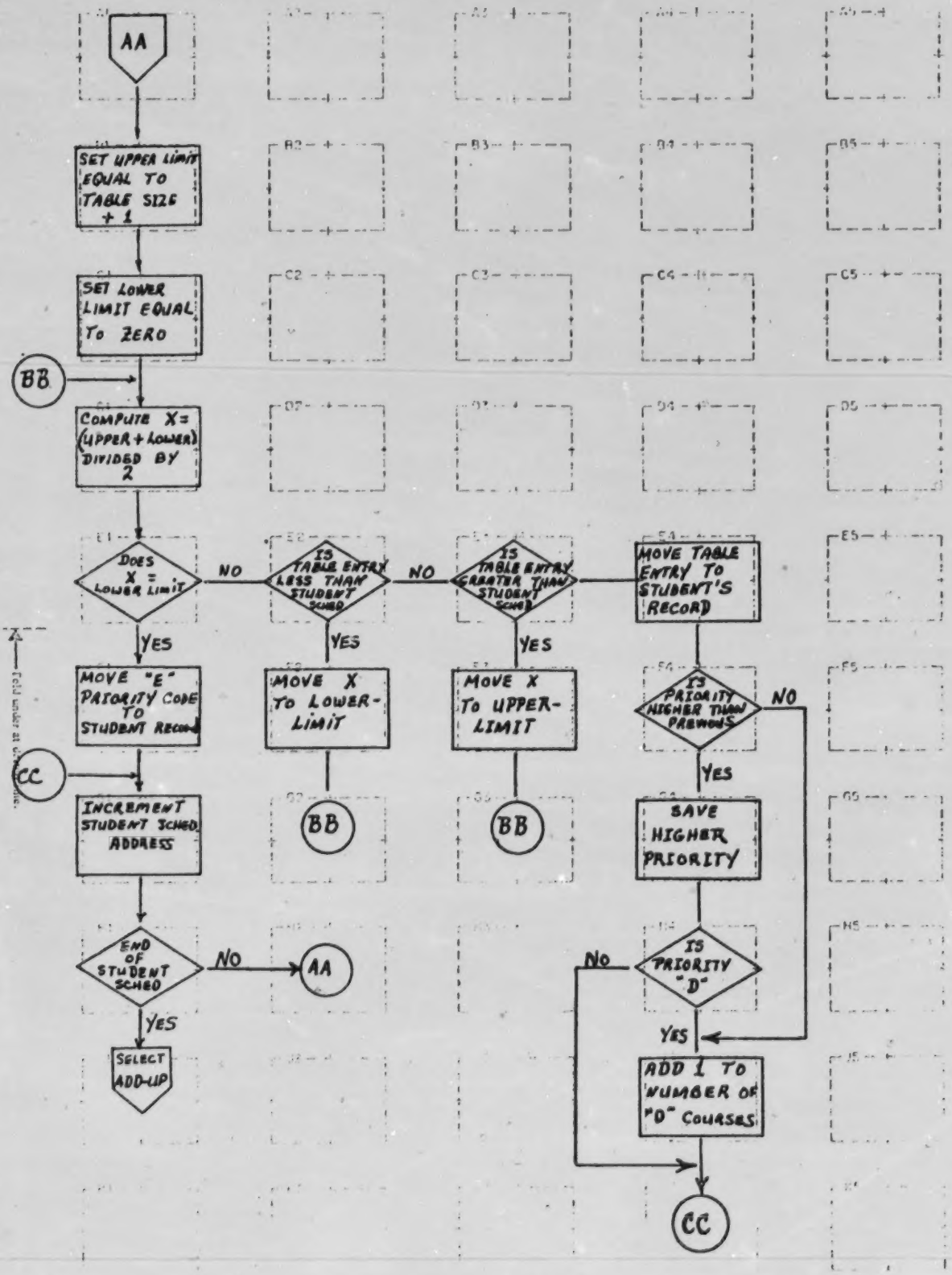
Chart ID: SAM-3 Chart Name: Program Name: ASSIGN COURSE MAJORS



IBM Flowcharting Worksheet

Programmer: WILLIAM J. WELLS Program No.: GW299.01 Date: Page: 2

Chart ID: SAM 3 Chart Name: Program Name:



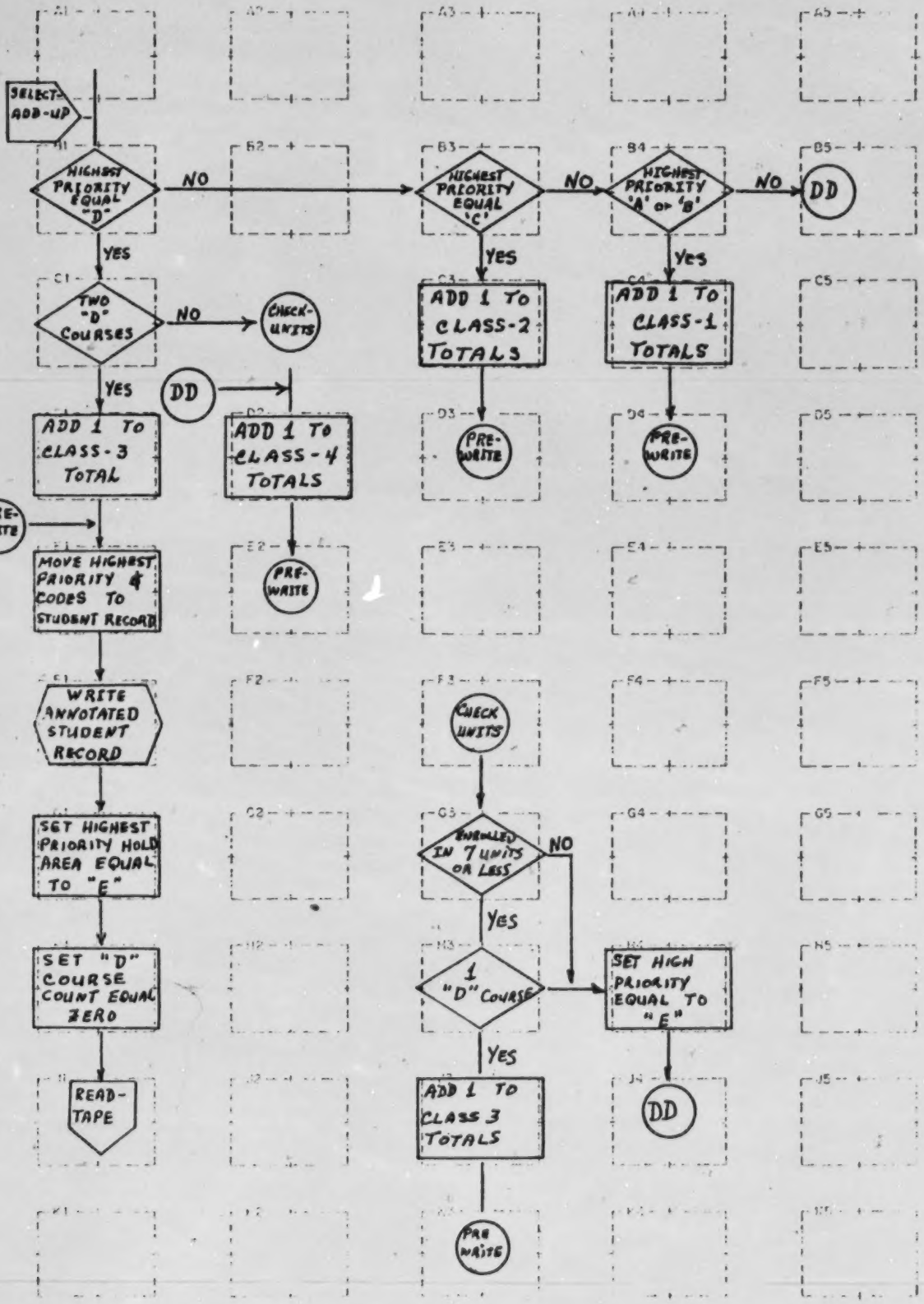
IBM Flowcharting Worksheet

LOS RIOS FLOWCHARTS

Printed in U.S.A.
GX20-8020-2 U/M 050
Reprinted 12/63

Programmer: WILLIAM J. WELLS Program No.: GW299.01. Date: Page: 3

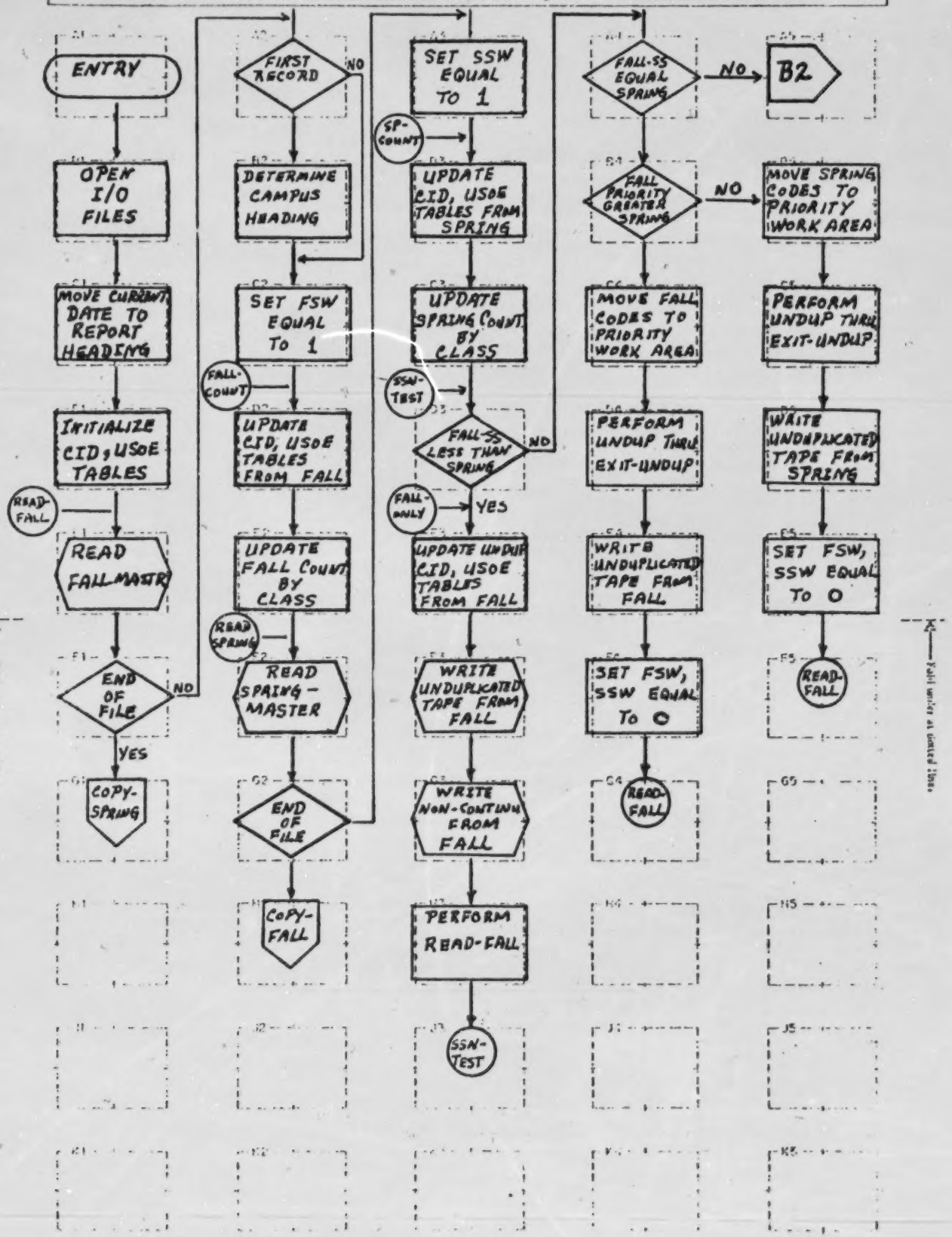
Chart ID: SAM-3 Chart Name: Program Name:



Fold under as dotted line.

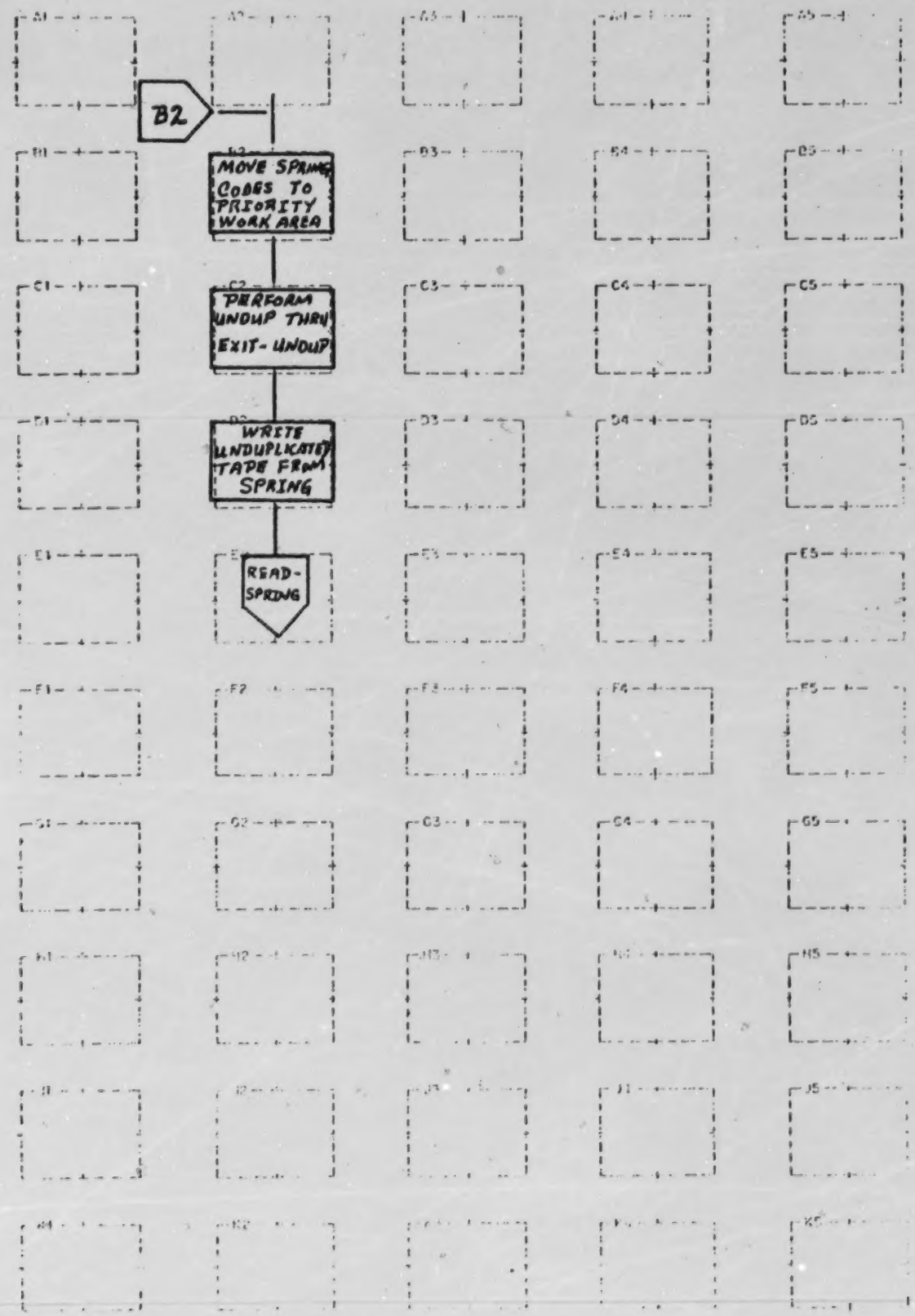
Fold under as dotted line.

Programmer: WILLIAM J. WELLS Program No.: GW299.02 Date: 07/14/74 Page: 1
Chart ID: SAM5 Chart Name: STUDENT ACCOUNTING Program Name: UNDUPLICATED COUNTS

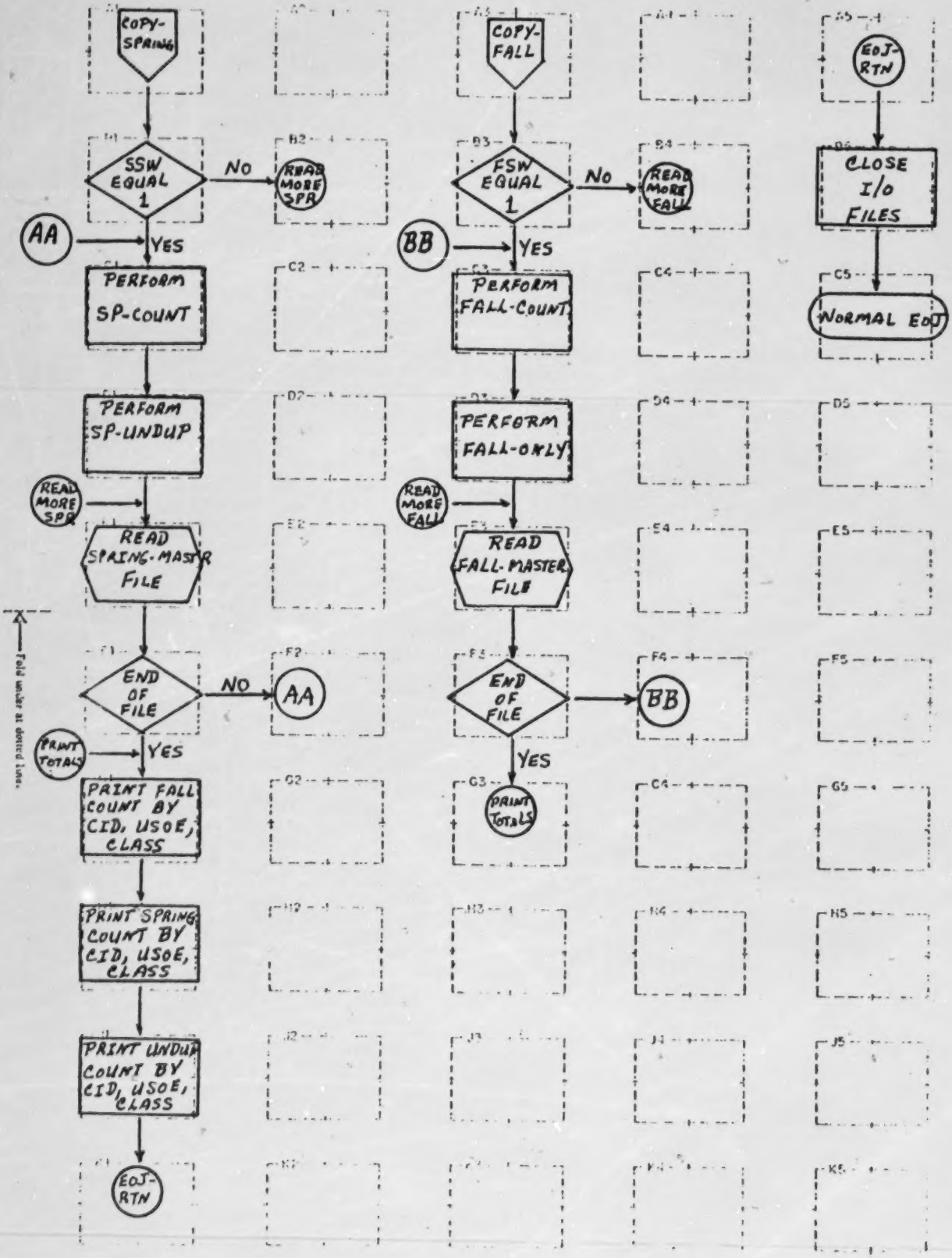


Programmer: _____ Program No.: GW299.02 Date: 07/14/74 Page: 2

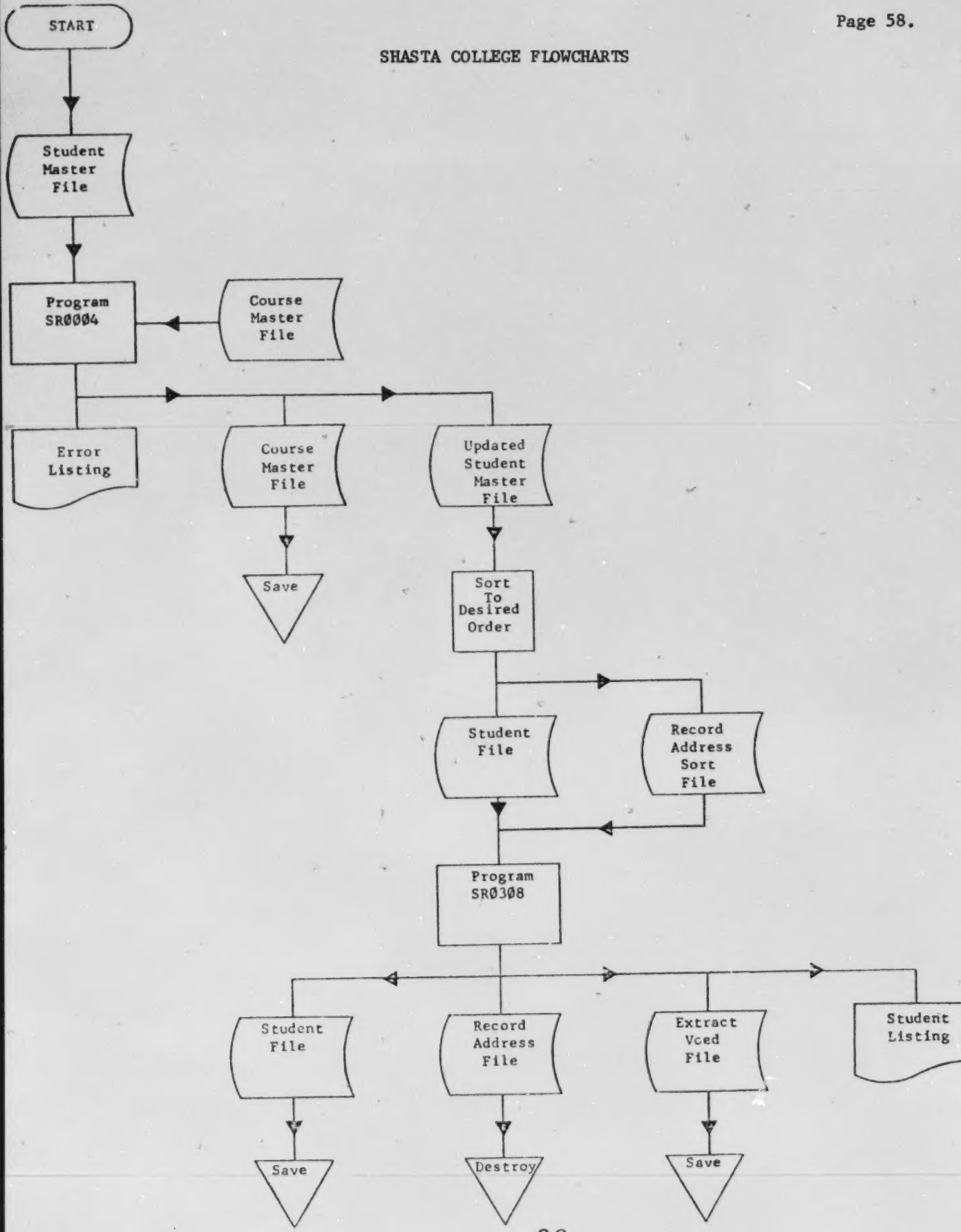
Chart ID: _____ Chart Name: _____ Program Name: _____


B2
MOVE SPRING CODES TO PRIORITY WORK AREA
PERFORM UNDUP THRU EXIT-UNDUP
WRITE UNDUPLICATED TAPE FROM SPRING
READ-SPRING
Fold under as dotted line.
Fold under as dotted line.

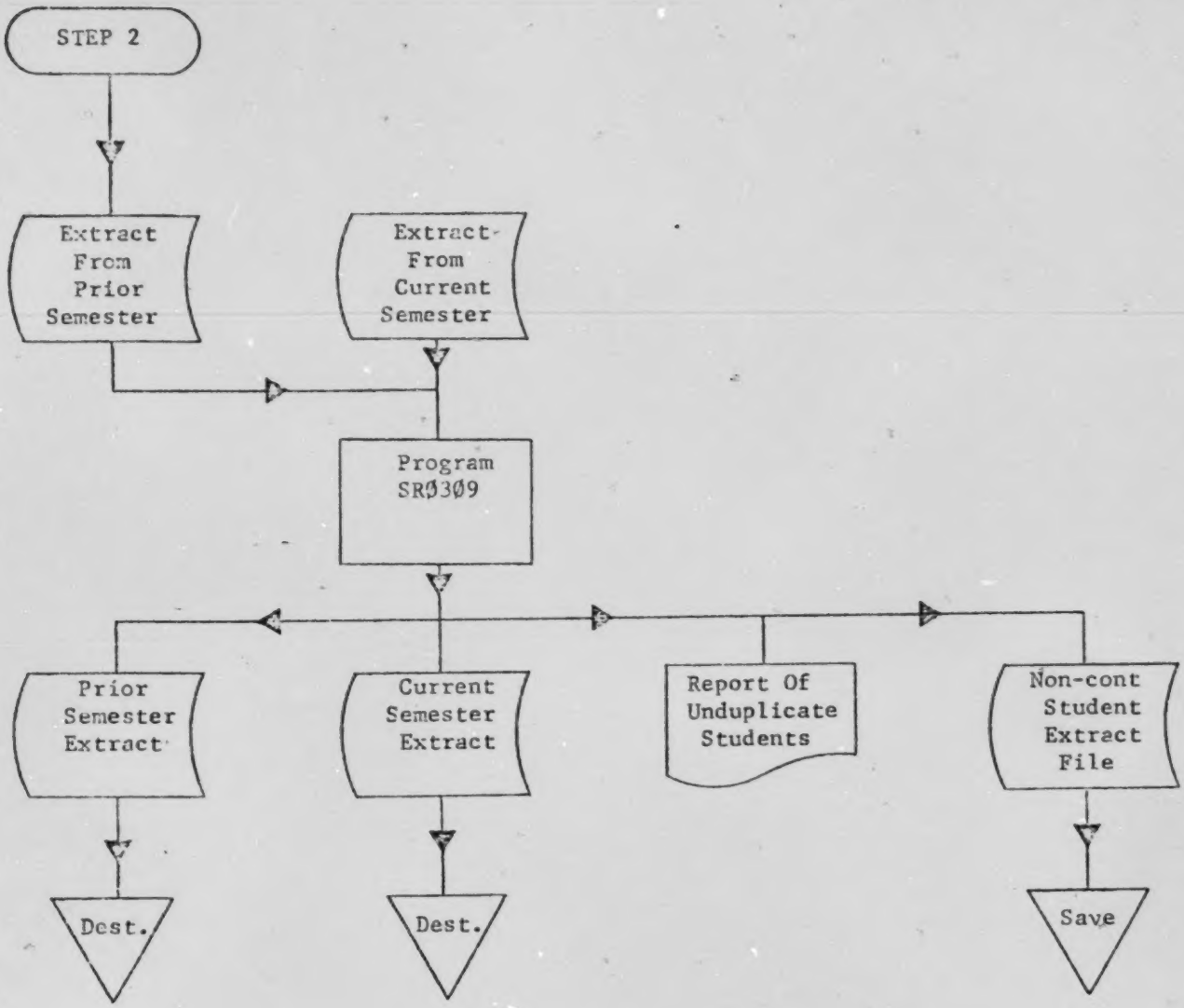
Programmer: Program No.: GW299.02 Date: 07/14/74 Page: 3
Chart ID: Chart Name: Program Name:



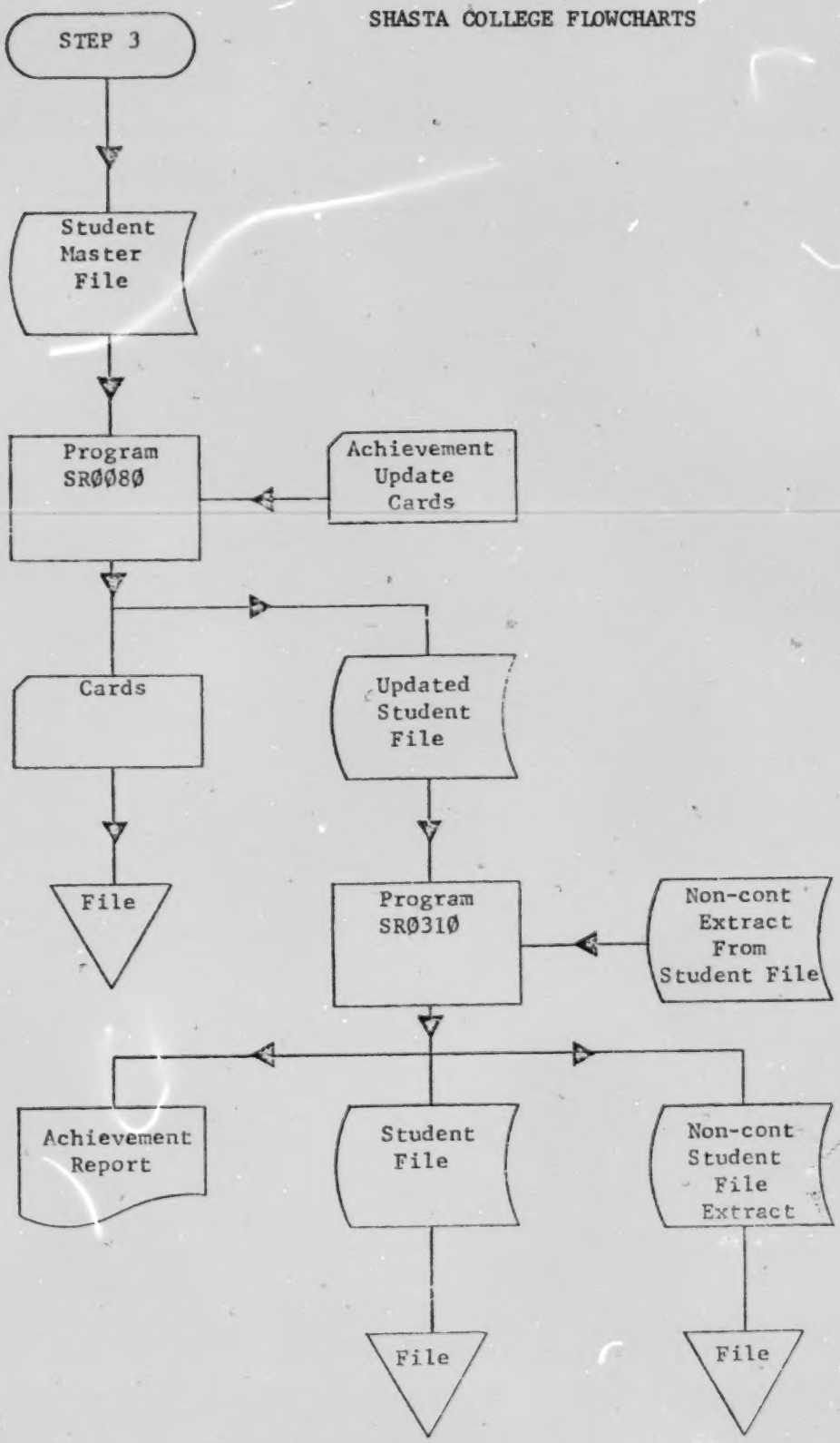
SHASTA COLLEGE FLOWCHARTS



SHASTA COLLEGE FLOWCHARTS

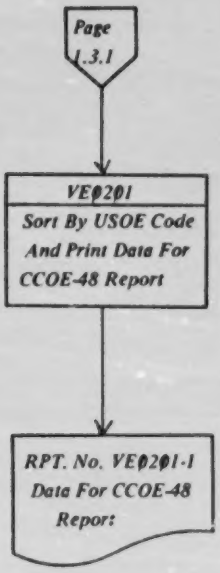


SHASTA COLLEGE FLOWCHARTS

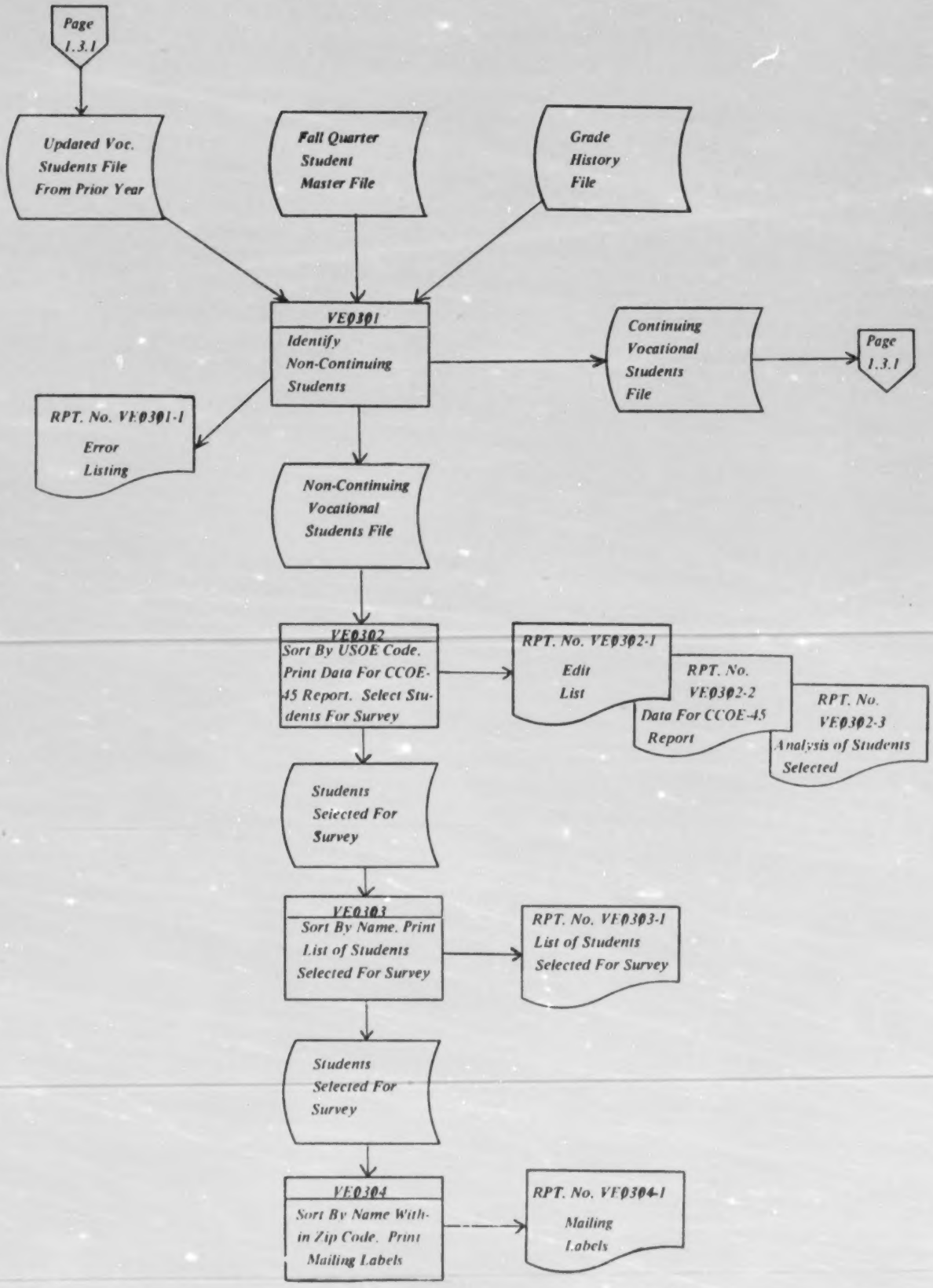


FOOTHILL DISTRICT

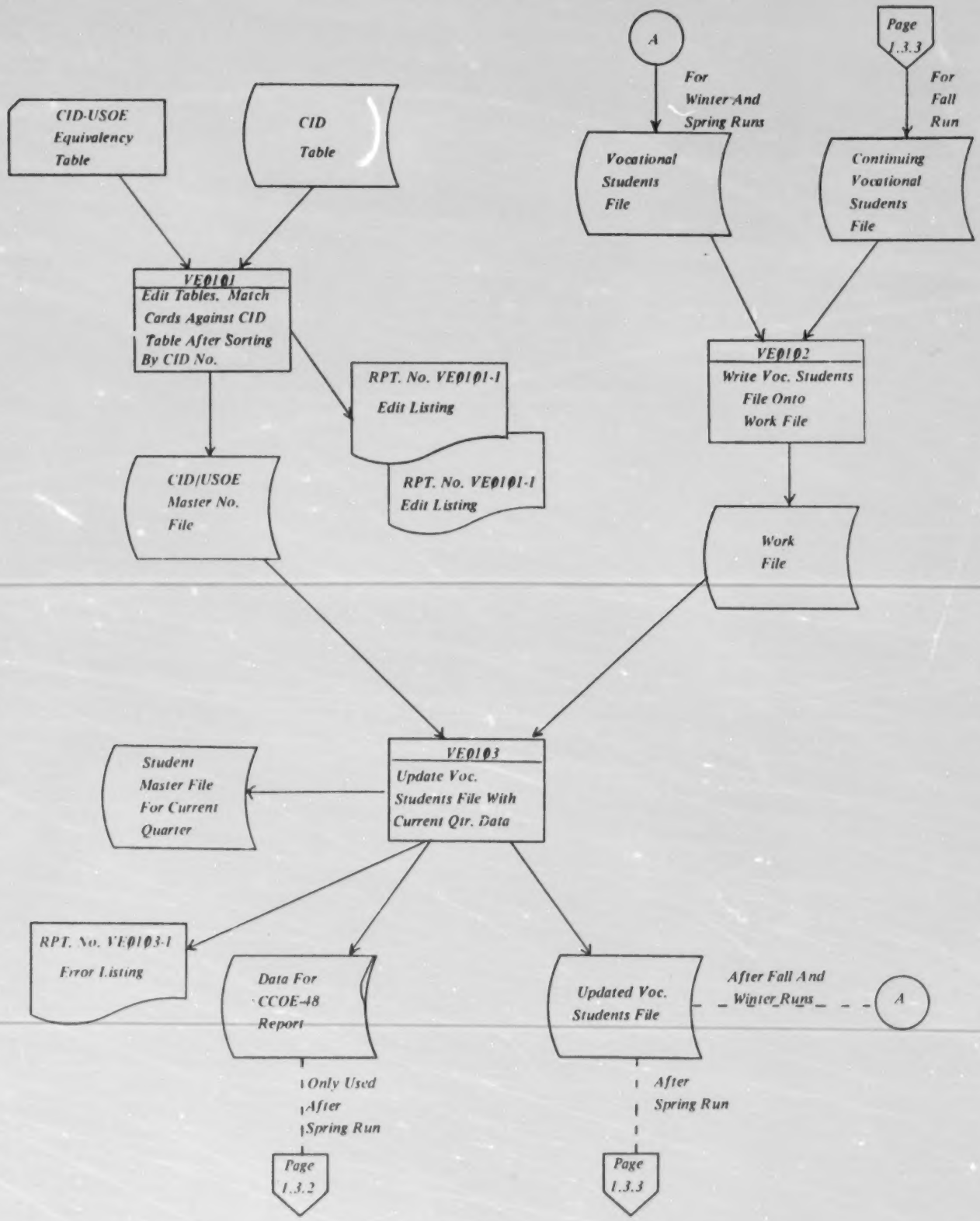
ANNUAL PROCESSING, PHASE 1



FOOTHILL DISTRICT
ANNUAL PROCESSING - PHASE TWO



FOOTHILL DISTRICT
QUARTERLY PROCESSING



VI. STEPS IN IMPLEMENTING THE MODEL

Following is a series of tasks, with approximate time lines, designed to assist colleges in implementing the model.

TASK	TIME	OPERATIONS MANUAL REFERENCES
I. Accounting Component		
1. Classify courses Identify all occupational courses Label each with appropriate CID or USOE (VEA) number	Prior to each semester	II-A p. 5-11
2. Identify student occupational majors Examine student's program Place student in Class 1,2,3,or 4 Identify major by CID or USOE code for each student in Class 1,2,3	Census week, each semester	II-B p. 12-14
3. Prepare student Occupational Majors List (OML)	Census week, each semester	II-C p. 15
4. Prepare annotated OML (or expanded SMF) Merge OML with Student Master File (SMF) to identify desired student characteristics	Shortly after census week, each semester	II-C p. 15-18
5. Make counts for CCOE48* Make Fall counts and store; make Spring counts; get total unduplicated counts by totaling Fall and Spring counts, eliminating Fall figures for students enrolled in both semesters	Semester counts shortly after census week, each semester. Total counts after Spring census week	II-C p. 15-18
II. Follow-up Component		
6. Identify non-continuing students Match current SMF against previous semester SMF (as of census week)	Census week, each semester	III-A p. 19-20

* Alternative method for step (5)
Make Spring counts; add Fall counts for non-continuing students only (requires Step 6)

STEPS IN IMPLEMENTING THE MODEL (continued)

	TASK	TIME	OPERATIONS MANUAL REFERENCES
7.	Prepare Follow-up Matrix Horizontal position (Class 1,2 3, 4) determined by Step 2 above. Vertical position (G,C,A,P,N) determined by accomplishment during previous semester Each non-continuing student placed in appropriate cell of matrix	Shortly after census week, each semester	III-A p. 21
8.	Select cells of matrix for follow-up Select according to college needs; must include groups for CCOE45	Shortly after census week, each semester	III-B p. 22-23
9.	Perform follow-up procedures Design study, collect and analyze data, disseminate findings	Shortly after census week, Fall semester (also Spring semester if desired)	III-B p. 23-30 III-D p. 35-42 also through IV, V
10.	Complete CCOE45 Total counts for Fall and Spring	November, each year	III-C p. 30-34

* * * * * * * * * * *

A P P E N D I C E S

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B.	Sampling in Follow-up Studies	69
C.	Sample Instruments	77
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APPENDIX A

IDENTIFICATION OF DISADVANTAGED STUDENTS

SAM CHALUI, utilizing SAM designated B, C, and D courses provides a systematic process to identify and to assist occupational students who meet the disadvantaged criteria under the Federal Vocational Education Act. SAM A courses are not included as it is assumed that students in an apprenticeship program will not fall into the category of potential non-successful students.

This research and development project, sponsored by the Chancellor's Office, is based in San Jose City College and operating under the advisement of a statewide consortium of community college representatives who are actively involved in the development of the SAM CHALUI concept. This method will add to the quality and accuracy of the information reported annually to the Chancellor's office.

The SAM CHALUI process involves an instructor, counselor, or student initiated referral system utilizing student needs as the mode of identification. IBM cards are provided to counselors and vocational instructors at the beginning of the semester. The referral needs are identified on the IBM card which contains the area of specific need utilizing CHALUI indicators:

C ounseling
H ealth
A ttendance
L anguage
U nderachiever
I nstructional

As soon as the potential non-successful student is recognized, an IBM card is forwarded to the SAM CHALUI office with the area of student need indicated by checking the appropriate CHALUI student need indicator.

Two integral concepts are essential. Included within the process is the provision for ongoing feedback and discussion with the referral person, support and/or other services involved. The second important element is an ongoing follow-up system whereby the student is followed throughout the semester to ascertain that the student's needs are being met. Again, ongoing feedback is given to the concerned instructor.

Many students recognize their own needs; therefore, the process provides for self-referral. Although support services and assistance are available for students, SAM CHALUI gives the student direction in meeting his individual needs. The San Jose project has found that the majority of students who need help either do not know where to seek assistance, are unable to say, "I need help", or are unaware assistance is available. The SAM CHALUI process solves these difficulties, while at the same time ascertaining, by coordination of services, that the student is not fragmented.

APPENDIX A (continued)

Key to the success of the project is the involvement and concern of the total San Jose occupational support and remedial staff. Commitment by both the Board of Education and administrators is requisite to its success.

Involvement and dedication of the San Jose campus is indicated by the SAM CHALUI phrase, "Emotions and learning go hand in hand. Joy and Happiness are twins to be shared, but the converse is also true; problems have to be shared too."

Information can be obtained through Dr. William Morris, Research and Evaluation Specialist, Sacramento; Dr. Greg Ohanneson, Assistant Dean, or Dr. Hazel Smith, Project Director, San Jose City College. Consortium members can also be contacted.

Consortium members:

Dr. Lois Callahan ..... College of San Mateo (Project Originator)
Ed Alfaro ..... Laney College, Oakland
Issac Guzman ..... El Camino College, Los Angeles County
Ken Hunt ..... East Los Angeles College
Edward Pearce ..... Cuesta College, San Luis Obispo
Robert Thompson ..... De Anza College, Los Altos
Bruce Stewart ..... Mira Costa College, Oceanside

Submitted by Hazel Smith, Project Director

APPENDIX B

SAMPLING IN FOLLOW-UP STUDIES

Two of the knottiest problems in follow-up studies are: (1) guaranteeing that those responding in the study are representative of the population under study, and (2) cost (in terms of money, personnel, and time) of making contacts with former students and obtaining appropriate information from them.

A carefully structured sampling plan can often help in solving both of these problems. The following pages offer some suggestions for use of sampling in conducting follow-up studies.

Some important points to note:

(1) For any sample to be representative of a population within desired probability limits, the sample must be selected randomly, i.e., every member of the population being sampled must have the same chance of being selected in the sample.

(2) Sample size is much more important than what percent it is of the population. A ten percent sample of ten is meaningless; a ten percent sample of 100,000 is wasteful. Note (from Table p. 3), for example, that a random sample of 600 gives results within $\pm$ 4%, even if the population were infinitely large. But also note, that for a small population of 100, the same accuracy requires a sample of 86.

(3) Simple random sample (see p. 72)is probably the most appropriate method for most follow-up studies.

(4) Proportional stratified random sampling (see p. 76) is useful in certain studies where a large heterogeneous group can be easily partitioned into subgroups, each of which is internally homogeneous (relative to the total).

Some advantages of stratified sampling are:

(a) provides data of known precision* for subpopulations.
(b) often more convenient to administer.
(c) may bring about gain in precision of estimates for the whole population.

Stratified sampling can occasionally be useful in broad scale follow-up studies, but its usefulness is severely limited when many differing majors are to be included, as is usually the case in occupational follow-up.

* precision will be less, however, as samples are smaller

APPENDIX B (continued)

(5) Tables on the following pages apply to data involving attributes (not measurements) of people involved (e.g., percent male, percent working, percent working in field, percent giving favorable response). If data involves measurement and produces averages (e.g., average monthly salary, average number of hours per week employed, average on a rating scale), sample sizes can be even lower than those indicated.

The items listed below are presented on the following pages:

Table for Selecting Sample Size

Procedure for Selecting a Random Sample

Procedure for Identifying Follow-up Response Bias

Table for "Check" Questions

Procedure for Extrapolating Sampling Results to Entire Population

Procedure for Selecting a Proportional Stratified Random Sample

TABLE FOR SELECTING SAMPLE SIZE

If your population is of size	and you want to guarantee* that your sample percent reflects your population percent within ±									then you should use a sample of size
	±1%	±2%	±3%	±4%	±5%	±6%	±7%	±8%	±9%	±10%
100	99	97	92	86	80	73	67	61	55	49
150	148	142	132	121	108	97	85	76	67	59
200	196	185	169	151	132	115	99	86	75	65
250	244	227	203	177	152	130	110	94	81	70
300	291	267	235	201	169	142	119	101	85	73
350	338	306	264	222	184	152	126	106	89	76
400	385	343	291	241	196	161	132	110	92	78
450	430	379	317	258	208	168	137	113	94	80
500	476	414	341	273	218	174	141	116	96	81
600	565	481	385	301	235	185	148	121	100	83
700	653	542	423	324	249	194	154	124	102	85
800	739	601	458	343	260	201	158	127	104	86
900	823	655	489	361	270	206	161	129	105	87
1000	906	706	517	376	278	211	164	131	106	88
1200	1067	801	565	401	292	219	169	134	108	89
1400	1222	885	606	421	302	225	172	136	110	90
1600	1372	961	641	437	310	229	175	138	111	91
1800	1516	1029	670	451	317	233	177	139	112	92
2000	1656	1092	696	462	323	236	179	140	112	92
2500	1984	1225	748	485	333	242	182	142	114	93
3000	2286	1334	788	501	341	245	184	143	115	94
3500	2566	1425	818	513	347	248	186	144	115	94
4000	2824	1501	843	522	351	251	187	145	116	94
4500	3065	1566	863	530	354	252	188	146	116	95
5000	3289	1623	880	536	357	254	189	146	116	95
6000	3693	1715	906	546	362	256	190	147	117	95
7000	4049	1788	926	553	365	257	191	147	117	95
8000	4365	1847	942	559	367	259	192	148	117	95
9000	4647	1896	954	563	369	260	192	148	118	96
10000	4900	1937	965	567	370	260	193	148	112	96
15000	5856	2070	997	578	375	263	194	149	118	96
20000	6489	2144	1014	583	377	264	195	149	118	96
25000	6939	2191	1024	587	379	264	195	150	119	96
Infinitely large	9604	2401	1067	600	384	267	196	150	119	96

For example, if you have a population of 5,000 people and you want the sample percent to be within 4% of the true population value, you should use a sample size 536.

* odds 19 to 1

SUGGESTED PROCEDURE FOR SELECTING A RANDOM SAMPLE

1. Determine the sample size desired (see Table).

2. Assign a number to each member of the population.

3. Divide the population size by the sample size and round down to nearest whole number, obtaining the "skip" number.

4. Select a "start" number (smaller than or equal to the "skip" number) by random procedure (e.g., take the next to the last digit of your telephone number).

5. Draw the sample by selecting the person assigned the start number and succeeding persons assigned numbers obtained by successively adding the "skip" number.

   Example:

   It is decided that sampling is appropriate for a population of 3,500 and accuracy is desired within $\pm$ 4%. From the table, the sample size is determined to be 513. Skip number is $3500 \div 513 = 6$. Take start number to be 5. Sample consists of those with numbers 5, 11, 17, 23, 29, 35, ... (every 6th until 513 obtained).

A simplified sampling scheme which is used in follow-up studies at some colleges is as follows:

Population	Sample
1 - 49	Every student
50 - 199	Every second student
200 - 399	Every third student
400 - 899	Every fifth student
900+	Every tenth student

SUGGESTED PROCEDURE FOR IDENTIFYING FOLLOW-UP RESPONSE BIAS
(Mail or Telephone)

1. Include two or three "check" questions* for which total population percentages are known, e.g., sex, ethnic, high school source, etc.

2. Compare response percents with population percents on "check" questions.

3. If "check" question differences are all within allowable limits (see Table), assume response sample is representative.

4. If one or more "check" question differences are outside allowable limits, response sample cannot be assumed representative and you should do one of the following:

   (a) make further efforts at increasing number of responses

   (b) prepare report, clearly indicating the nature of the bias and indicating that findings can not be generalized

If use of "check" questions is not possible, a telephone survey of random sample of non-respondents is advisable. Responses of this group can be compared with those of the previous respondents. For a discussion of recent experience using this technique, see "Representative Sampling", College of the Mainland Project Follow-up, Tarrant County Junior College District and Texas Education Agency, August, 1976.

* It is of course best to use as "check" questions characteristics which are related to those which are of concern in the follow-up study. The "check" procedures indicated do not guarantee lack of bias, but should aid in reducing it.

TABLE FOR "CHECK" QUESTIONS

If you mailed to (or phoned) this many people — and your response rate is — then you can be reasonably* confident your response is unbiased if differences on your "check" questions are not greater than

	10%	20%	30%	40%	50%	60%	70%	80%	90%
50									5
100								5	3
150							5	4	3
200							5	3	2
250						5	4	3	2
300						5	4	3	2
350					5	4	3	3	2
400					5	4	3	2	2
450					5	4	3	2	2
500				5	4	4	3	2	1
600				5	4	3	3	2	1
700				5	4	3	2	2	1
800			5	4	3	3	2	2	1
900			5	4	3	3	2	2	1
1000			5	4	3	3	2	2	1
1200			4	3	3	2	2	1	1
1400		5	4	3	3	2	2	1	1
1600		5	4	3	2	2	2	1	1
1800		5	4	3	2	2	2	1	1
2000		4	3	3	2	2	1	1	1
2500		4	3	2	2	2	1	1	1
3000	5	4	3	2	2	1	1	1	1
4000	5	3	2	2	2	1	1	1	1
5000	4	3	2	2	1	1	1	1	0
10000	3	2	1	1	1	1	1	0	0

RESPONSE NOT ADEQUATE

* odds are 19 to 1

Example:

If total mailing is known to be 56% male, and you sent 250 questionnaires, a 60% response can be assumed to be unbiased (at least as far as sex is concerned) if the respondent percent male shows between 51% and 61% male (56%±5%).

PROCEDURE FOR EXPANDING FROM RESPONSE SAMPLE TO POPULATION

1. Compare population and response sample values on "check" questions. If <u>any</u> differences are outside allowable limits, extrapolation should not be made.

2. If response rate is less than 80%, "oversampling"* is recommended, e.g., additional people should be contacted. To determine the number of additional contacts, divide the original sample size by the response rate (to get total necessary) and subtract the number of responses already obtained.

   Example:

   If a sample of 600 produced a 75% response,

   a total of $\frac{600}{.75} = 800$ (or an additional 200)

   people should be contacted.

3. If "check" questions indicate lack of bias and number of responses is increased by "oversampling" (if necessary) percents and averages calculated in sample can be considered reliable estimates of the true population values.

* This obviously can not be done if initial contacts were made to the entire population. Also, for low resporse rates, the recommended oversampling can be rather large. Compromises based on judgment and experience will have to be made.

PROCEDURES FOR SELECTING A PROPORTIONAL STRATIFIED RANDOM SAMPLE

1. Decide on the stratification variables.
   e.g., 4 levels of major, received (or not) Associate Degree

2. Partition the population into appropriate strata.
   e.g., population of 5,000 stratified on degree and major might be:

Degree ?	Occup. Cl. 1	Occup. Cl. 2	Occup. Cl. 3	Non-Occup.	Totals
Yes	600	800	300	1300	3000
No	600	500	200	700	2000
Totals	1200	1300	500	2000	5000

3. Determine the proportion of the population in each stratum by dividing the number in the stratum by the total number in the population.
   e.g.,

Degree ?	Occup. Cl. 1	Occup. Cl. 2	Occup. Cl. 3	Non-Occup.	Totals
Yes	12	16	6	26	60
No	12	10	4	14	40
Totals	24	26	10	40	100

(figures now indicate percents)

4. Determine <u>total</u> sample size desired (from table or other considerations) e.g., assume in this example sample of 400 desired.

5. Determine stratum sample sizes by multiplying total sample size by percents obtained in step 3.

Degree ?	Occup. Cl. 1	Occup. Cl. 2	Occup. Cl. 3	Non-Occup.	Totals
Yes	48	64	24	104	240
No	48	40	16	56	100
Totals	96	104	40	160	400

6. Select sample for each stratum, using random sampling procedures.

(Sample In-Class Questionnaire)

To the student:

The purpose of this questionnaire is three-fold: (1) to provide necessary information for funding purposes; (2) to provide the college information to help us better meet student needs, and (3) to be of assistance to you in career planning. If you have completed this form in another class, it is not necessary to complete another one.

When you later receive a follow-up questionnaire, we would appreciate your completing and returning it promptly. Thank you.

STUDENT PLANS FOR NEXT SEMESTER

Instructor_____
Course _____
Date_____

Name _____ College Major_____

PERMANENT address _____ _____ _____ _____
(Street) (City) (State) ZIP

Telephone Number _____

Indicate below relative (or friend) who will always know your address.

_____ _____ _____ _____ _____
(Name) (Street) (City) (State) ZIP

Please check (and complete) any of the following that are appropriate. (To the best of your knowledge at this time)

_____ I plan to return to this college next semester.
_____ I plan to transfer to _____ (college).
_____ I plan to work full-time next semester.

____ I am fairly certain I will be employed with (name and address of employer)

_____

_____

____ I think I may have a job but am not sure. (name and address of prospective employer)

_____

_____

____ I have no prospects for employment at this time and I would appreciate assistance.

(Sample Exit Interview Form)

Student Withdrawal Form Date _____

Name _____ ID #_____

Permanent Address _____ _____ _____
(Address) (City) ZIP

College Major _____

Have you been employed this semester? No_____ Yes_____

1/4 time_____ 1/2 time_____ 3/4 time_____ full-time _____

Do you plan to return to this college? Yes_____ No_____ Not sure_____

Do you plan to transfer to a four-year college?

Yes_____ No_____ Not sure_____

How well do you feel this college served you?

excellently _____ adequately_____ poorly_____

Please check (one or more) reasons for your withdrawal:

_____ insufficient funds

_____ personal or family illness or accident

_____ transportation problem

_____ going to work full-time
(have you found a job yet? Yes____ No____)

_____ unhappy with schedule

_____ family moving away

_____ going to another school

_____ conflicting job hours

_____ not enough time to study

_____ personal, prefer not to state

_____ other (please describe)_____

_____

Please write any comments on the back of this sheet.

(Sample Follow-up Alert Letter)

Dear _____:

Our records indicate that you are no longer in attendance at this college.

We hope your stay has been worthwhile and hope you will return whenever our offerings can be of service to you.

One of our most important sources of information to assist us in planning programs which can be of service is feedback from former students like yourself. From time to time we send questionnaires to our former students to obtain this type of information and we hope that when you receive one of our requests you will respond promptly.

Meanwhile, we should like to ask that you keep us posted on any change of address.

We wish you well in your future endeavors.

Sincerely,

(possibly enclose Change of Address form)

(Sample Follow-up Accompanying Letter)

Dear Former Student:

The employment environment in which our former students work is complex and changing rapidly. It is our concern that the vocational-technical career programs offered by the colleges in the Community College District keep up with the challenges of technological change.

We have a continuing interest in our present and former students, and we would like to know how you, as a former student, have progressed. We are particularly interested in knowing how the courses which you have taken while attending the College have prepared you for the occupation in which you are now employed.

By completing the enclosed, postage-paid form and returning it promptly, you will be rendering a significant service to the students who are presently enrolled at your college, and to those who will enroll at your college in the future. Only a few minutes of your time will be required and your response will be of great value to us as we evaluate our progress and plan new programs.

Thank you for your assistance. We encourage you to keep in touch with the campus of your choice within the Community College District and to take advantage of the services which are offered.

Sincerely yours,

Superintendent, Community
College District

Name _____ Present Address _____

Telephone Number _____ Social Security Number _____

What was your first job after leaving College? _____

Who was your first employer? _____

PLEASE ANSWER THE FOLLOWING QUESTIONS RELATING TO YOUR PRESENT JOB.

What is your present job? _____

Who is your present employer? _____

Do you work full-time? _____ Or part-time? _____

Do you work day shift? _____ Swing shift? _____ Graveyard? _____ Other? _____

How many hours per week do you work? _____

What is your hourly rate of pay? _____ What is your monthly rate of pay? _____

How long have you held this job? _____

How has your college training helped you in your present job: to get the job _____
to earn a promotion? _____ Other? _____
(please explain)

Were you given help by the Placement Office or the Instructional staff of the college in seeking your first job?

Yes _____ No _____ Please explain. _____

We would like to have you rate various aspects of your college experience as it relates to your present work. (Please check the appropriate column.)

	Excellent	Good	Acceptable	Poor
a. College instructional program				
b. Training facilities & equipment				
c. College work experience program				
d. College counseling services				

Which course or courses taken while in college have been most helpful to you in your work? Explain _____

_____

What additional training or skills would have been most useful for you to develop?

Explain: _____

_____

_____

Comments: Please provide any information about yourself, or the college, which you feel would be helpful to us in improving our occupational programs.

_____

_____

_____

_____

1. WHAT IS YOUR PRESENT EMPLOYMENT STATUS
   (1) ___ Working full-time,(30 hours per week or more).
   (2) ___ Working part-time, (less than 30 hours per week).
   (3) ___ Not working, looking for a job.
   (4) ___ Not working, not looking for a job.
   (5) ___ Military Service
2. WHICH SINGLE DESCRIPTION BEST REPRESENTS YOUR PRESENT JOB?
   (1) ___ In the occupation for which I prepared while in college.
   (2) ___ In an occupation related to my college training.
   (3) ___ In a field not related to my college training.
   (4) ___ Apprenticeship program. (Specify) _____
   (5) ___ Not employed.
3. IF YOUR JOB IS NOT IN A FIELD CLOSELY RELATED TO YOUR OCCUPATIONAL TRAINING, IS THAT TRAINING OF USE TO YOU ON YOUR PRESENT JOB?
   (1) ___ Yes
   (2) ___ No
4. HOW WELL DID YOUR COLLEGE OCCUPATIONAL TRAINING PREPARE YOU WITH THE SKILLS NECESSARY IN THE FIELD THAT YOU STUDIED?
   (1) ___ Very well
   (2) ___ Fairly well
   (3) ___ Poorly

BASED ON YOUR EXPERIENCE IN COLLEGE, PLEASE RATE THE FOLLOWING:

	Excellent (1)	All right (2)	Poor (3)	Doesn't Apply (4)
5. Occupational program	____	____	____	____
6. Non-occupational courses	____	____	____	____
7. Class instruction	____	____	____	____
8. Program planning assistance	____	____	____	____
9. Career information	____	____	____	____
10. Personal counseling	____	____	____	____
JOB PLACEMENT SERVICES:				
11. Instructor	____	____	____	____
12. Placement office	____	____	____	____

13. WHAT WAS THE MOST IMPORTANT REASON YOU STOPPED ATTENDING COLLEGE?
   (1) ___ Job
   (2) ___ Personal/Family problems
   (3) ___ Financial problems
   (4) ___ Fulfilled current educational needs/desires
   (5) ___ Enrolled in other Community College District College
   (6) ___ Other _____
14. WHICH ONE OF THE FOLLOWING WAS THE MOST SERIOUS PROBLEM DURING YOUR SEARCH FOR EMPLOYMENT?
   (1) ___ Finding suitable job openings.
   (2) ___ Knowing how to make contact with potential employers.
   (3) ___ Meeting job requirements.
   (4) ___ Other (explain) _____

_____

_____

15. HOW DOES YOUR PRESENT RATE OF PAY COMPARE TO THAT WHICH YOU RECEIVED BEFORE YOUR OCCUPATIONAL STUDIES?

(1) ___ More (2) ___ Same (3) ___ Less

(Sample Follow-up Questionnaire)

NAME _____

ADDRESS _____

PHONE No. _____

.....

PLEASE ANSWER ALL OF THE FOLLOWING QUESTIONS:

1. What is your present employment status?
   - _____ Working full-time (30 hours per week or more)
   - _____ Working part-time (less than 30 hours per week)
   - _____ Not working, looking for a job
   - _____ Not working, not looking for a job
   - _____ Military Service

2. Which single statement best describes your present job?
   - _____ In the occupation for which I prepared while in college
   - _____ In an occupation related to my college training
   - _____ In a field not related to my college training
   - _____ Apprenticeship program (specify) _____
   - _____ Not employed

3. Are you attending college?
   - _____ No
   - _____ Yes

   College _____
   Major _____
   Units carried _____

4. Please rate the following according to your college experience.

	Excellent	Average	Poor
Class, laboratory, and/or clinical instruction	____	____	____
Help from instructor outside of class	____	____	____
Program planning assistance	____	____	____
Vocational information available	____	____	____
General opinion of college	____	____	____

5. Were you employed prior to taking your work at college?
   Yes____ No ____
   At a lower level? Yes____ No_____
   In the same level? Yes____ No_____

6. Do you plan to continue your college education to a Bachelor's degree or higher?
   - _____ Already have Bachelor's degree
   - _____ Yes, will continue right away
   - _____ Yes, but later
   - _____ Probably not
   - _____ Definitely no

7. Do you think you will return to this or any college for additional training in order to advance on the job?
   Yes ____ No ____ Not sure ____

Continued on next page

(Sample Follow-up Questionnaire) continued

PLEASE ANSWER THE FOLLOWING QUESTIONS IF YOU ARE PRESENTLY EMPLOYED:

1. How well did your college occupational training prepare you for skills you need on your present job?

   _____ poorly _____ fairly well _____ very well

2. Do you feel that your college occupational training was important to you in getting your present job?

   _____ not at all _____ some _____ a great deal

3. What is your current rate of pay?

   _____ $1.99 or less per hour
   _____ $2.00 - 2.99 per hour
   _____ $3.00 - 3.99 per hour
   _____ $4.00 - 4.99 per hour
   _____ $5.00 - 5.99 per hour
   _____ $6.00 or more per hour

4. Please name the three college courses that were of most help to you in your work.

   _____ _____ _____

5. How long did it take you to find your first job after leaving college?

   _____ I had it before I left college
   _____ A month or less
   _____ One to three months
   _____ More than three months

6. Please name the three college courses (of two units or more) that were of least help in preparing for your job.

   _____ _____ _____

7. If not employed in a field related to your occupational training, was your occupational training of value to you?

   Yes _____ No_____

   If yes, in what way? _____

   _____

8. Other comments _____

   _____

   (please continue on back side)

9. What is your job title? _____

10. Please furnish us the following information:

    Name of Employer _____

    Title _____

    Name of Company and/or Institution _____

    Mailing address _____

    _____

(Sample Letter to Employer)

What's this?

A questionnaire which you need not fill out. We do, however, need your cooperation when I or a representative from my office phones you sometime in the next few days.

Why me?

Because our records show that you are the employer/supervisor of at least one person who completed all or a significant portion of our Automobile Technology education and training program. Only you are in a position to judge the adequacy of this program in terms of job entry skill requirements.

So what?

Occupational Education is expensive -- to the student and taxpayer alike -- we can't afford to be wrong. The information you provide will be used to assure that future students will get the training you, our employers, need.

Remember, it's the program we want to evaluate -- not our former student.

You'll be hearing from us. Thanks in advance for your cooperation.

Sincerely,

Director of
Automotive Technology

Enclosure

(Sample General Questionnaire to Employer)

The job title(s) to which this evaluation applies is: _____

1. Please evaluate the overall effectiveness of our training program by checking whether the job skill items are "Essential," "Useful," or "Non-essential" to the above job in your organization and your rating of our effectivess in training for those items.

Essential	*Useful*	*Non-Essential*	JOB SKILLS ITEMS	*Excellent*	*Good*	*Acceptable*	*Below Expectations*	*Poor*
___	___	___	a. Technical knowledge	___	___	___	___	___
___	___	___	b. Operation of equipment & instruments	___	___	___	___	___
___	___	___	c. Writing skills	___	___	___	___	___
___	___	___	d. Verbal communications	___	___	___	___	___
___	___	___	e. Computational skills	___	___	___	___	___
___	___	___	f. Pre-employment procedures (application, interviews,personal appearance)					
___	___	___	g. Orienting individuals to employment (punctuality, attendance, attitude)	___	___	___	___	___
___	___	___	h. Others (specify) _____	___	___	___	___	___

2. How important is college level training in relation to other qualifications you consider in making the hiring decision?

_____ Very important _____ Of little importance

_____ Moderately important _____ Unimportant

3. Would you hire another graduate for a future job in your organization?

_____ Yes No _____

OPEN-END QUESTIONS (Use reverse side if additional space is required)

What, in your opinion, is the major strength of the occupational training provided by our College?

What, in your opinion, is the greatest need for improvement in the occupational training provided by our College?

What additional comments or suggestions do you have for our occupational training programs?

____ Please send me a copy of the completed survey.

(Sample Specific Area Questionnaire to Employer)

In order to provide students with the training needed to succeed in the electronics industry, it is most important that we obtain information from operational level personnel as to the adequacy of the present job preparation training program.

We are, therefore, asking for your evaluation of effectiveness of the training brought to the job by these former students. We would like to emphasize, our request is for information concerning the instructional program and is not a personnel performance report.

Please rate the following job-related areas as an indication of how well prepared students were for transition into your operation.

	Excellent	Good	Acceptable	Below Expectations	Poor	Not needed for job
1. Technical Knowledge Areas						
A. Basic Circuit Operation	___	___	___	___	___	___
B. Circuit Analysis and Application to Troubleshooting	___	___	___	___	___	___
C. Test Equipment Applications	___	___	___	___	___	___
D. Maintenance and Repair Operations and Skills	___	___	___	___	___	___
E. Interpretation and Application of Technical Data and Publications	___	___	___	___	___	___
F. Additional Comments						
2. General Knowledge Areas						
A. Computation Skills	___	___	___	___	___	___
B. Written Communication Skills	___	___	___	___	___	___
C. Verbal Communication Skills	___	___	___	___	___	___
D. Ability to Work with Others	___	___	___	___	___	___
E. Ability to Follow Directions	___	___	___	___	___	___
F. Exhibits Potential for Continued Job Growth	___	___	___	___	___	___
G. Based on Your Experience -- Would You Recommend Hiring Future Graduates From Our Program?		Yes ___			No ___	
H. Additional Comments:						

(Sample Interview Form for Employer)

I. JOB POSITIONS

A. According to my information, _____ has listed his/her job title as _____

B. Could you describe or provide the duties and responsibilities of this position: _____

_____

C. What is the pay range: _____

D. What are the benefits: _____

E. Minimum educational and experience requirements are: _____

_____

F. Opportunities and requirements for promotion for individuals in this position are: _____

_____

G. How many are employed in this position: _____

Number employed in the last two years: _____

Outlook for new openings in the next two years: _____

H. What other related positions/jobs are available in your organization:

_____

_____

(This section will be followed up with a written request for duties/responsibilities; pay range; benefits; and education/experience.)

II. Employer Opinion

A. What, in your opinion, is the major strength of the occupational training provided by our College?

_____

_____

B. What, in your opinion, is the greatest need for improvement in the occupational field?

_____

_____

C. What are the most significant proposed changes in this occupational field?

_____

_____

D. Describe how job skills and educational requirements will change in the next five years and affect current and proposed positions?

_____

_____

E. What additional comments or suggestions do you have for our College's occupational training programs?

_____

_____

APPENDIX D

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APPENDIX E

CALIFORNIA COMMUNITY COLLEGES SAM PROJECT, 1976-77

Consortium Members

Dr. Nathan H. Boortz
Director, Vocational and
Technical Education
Foothill-DeAnza
Community College District

Dr. Richard Brightman
Associate Dean of Instruction
Orange Coast College

Mr. Walter Brooks
Vice President, Student Affairs
Shasta College

Mr. Irvin Colt
Director, Occupational Education
Mt. San Antonio College

Dr. David Lien
Assistant Dean,
Technical and
Vocational Education
Grossmont College

Mr. Donald B. Medley
Data Processing Instructor
Moorpark College

Miss Judith Moss
Research Director
San Francisco Community
College District

Dr. John Randall
Vice President, Instruction
Cerritos College

Mr. Thomas Rose
Research Coordinator
Palomar College

Mr. Herbert Schlackman
Director of
Vocational Education
Santa Monica College

Mr. William Steinberg
Consultant
(retired from SDCCD)

Mr. Robert Thompson
Associate Director
Technical Education
Foothill-DeAnza Community
College District

EX-OFFICIO

Dr. Ben K. Gold
Project Coordinator
Los Angeles City College

Mrs. Shirley McGillicuddy
Assistant Project Coordinator
Shirley McGillicuddy & Associates

Dr. William Morris
Evaluation Specialist
California Community Colleges
Division of
Occupational Education

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